The Oil and Gas Journal

PRODUCING REFINING MARKETING

VOL. 23. NO. 32 TULSA, OKLAHOMA, JANUARY 1, 1925

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Crude Production Drops 46,115 bbls.

Average daily production in United States week ended Dec. 27, 1,929,541 bbls. Loss from previous week, 46,115 bbls.

Cold Weather Responsible for Big Decline in Output. Operations Curtailed in Many Fields

Highest daily average estimated production this year, week ended August 23, 2,057,319 bbls. Lowest January 12, 1,871,143 bbls.

By Andrew M. Rowley

Unusually cold weather conditions which prevailed in practically every oil field in the United States during the past week acted as a most potent factor in curtailing production of crude oil as is shown by the decrease of 46,115 barrels daily in the estimated average output of all fields as compared to the production the week before. The decline, one of the largest recorded during the past year, was caused almost entirely by the cold weather which resulted in water lines freezing, operations being shut down and a decrease in pipe line runs in certain areas estimated as high as 75 per cent.

The decline in production just about offset the effect of Wortham for the time being. In addition there is a feeling among operators that much of the loss sustained in production last week because of cold weather cannot be regained. In other words, they feel warm weather in the areas most affected would not mean an immediate return to the production level reached just before cold weather curtailed operations. Oklahoma, which suffered a loss of 24,000 barrels a day in output last week, will hardly be able to recover that loss as quickly as it was sustained.

While the Wortham Field showed a gain in average daily output of nearly 12,000 barrels, its production probably would have been considerably higher had the cold weather not held back operations. At one time it was estimated 90 per cent of the operations were shut down because of the cold weather. Late last week 25 per cent of the operations were held up because of lack of sufficient water. Some of the wells in the field are pinched in because of the showing of salt water. For the 24 hours ending Tuesday morning of this week, 17 wells at Wortham averaged 62,941 barrels.

Early this week there were 175 wells classified as drilling in the Wortham Field with about 131 actually drilling, the others being shut down because of lack of water. Numerous completions should be recorded in the near future and it is probable production there will continue to mount steadily and rapidly for the next few weeks.

While another increase in production was shown by California last week, the Dominguez Field which has been largely responsible for recent gains, registered a loss of 2,000 barrels daily. However, that field is still the center of most interest. The Associated Oil Company completed its third large well in the field during the past week, when its No. 2 De Francis came in good for 4,492 barrels of 30.9 gravity oil.

Oil men were interested last Saturday in the 25-cent advance in the prices for Pennsylvania crude oil. It was recalled, however, in considering whether this presaged price increases in other areas, that Pennsylvania crude prices were advanced last year around this time, four different times before the posted prices in the Mid-Continent were raised. Producers in Pennsylvania have indicated an intention not to sell their crude until prices were advanced materially, they claiming present prices are below the cost of raising the oil. Consequently, operators in other sections of the country do not attach much general significance to the Pennsylvania advance at this time. They feel confident a general increase in posted prices for crude is bound to come in a comparatively short time, probably when the full extent of Wortham can be better gauged.

Wortham, undoubtedly, has held back price advances in the Mid-Continent. Comments of operators on the decline in production caused by the cold weather showed just how fully the oil men realize Wortham is the one outstanding feature of the crude oil situation at this time and that price advances are largely dependent upon the showing of that field during the next few weeks. Invariably the comment on the drop in production was, "Well, the weather has just about offset Wortham." The increase of 10 cents a barrel announced by independent refiners buying Tonkawa crude, which is of especially high gravity, was regarded as a local situation without effect upon the general Mid-Continent price structure.

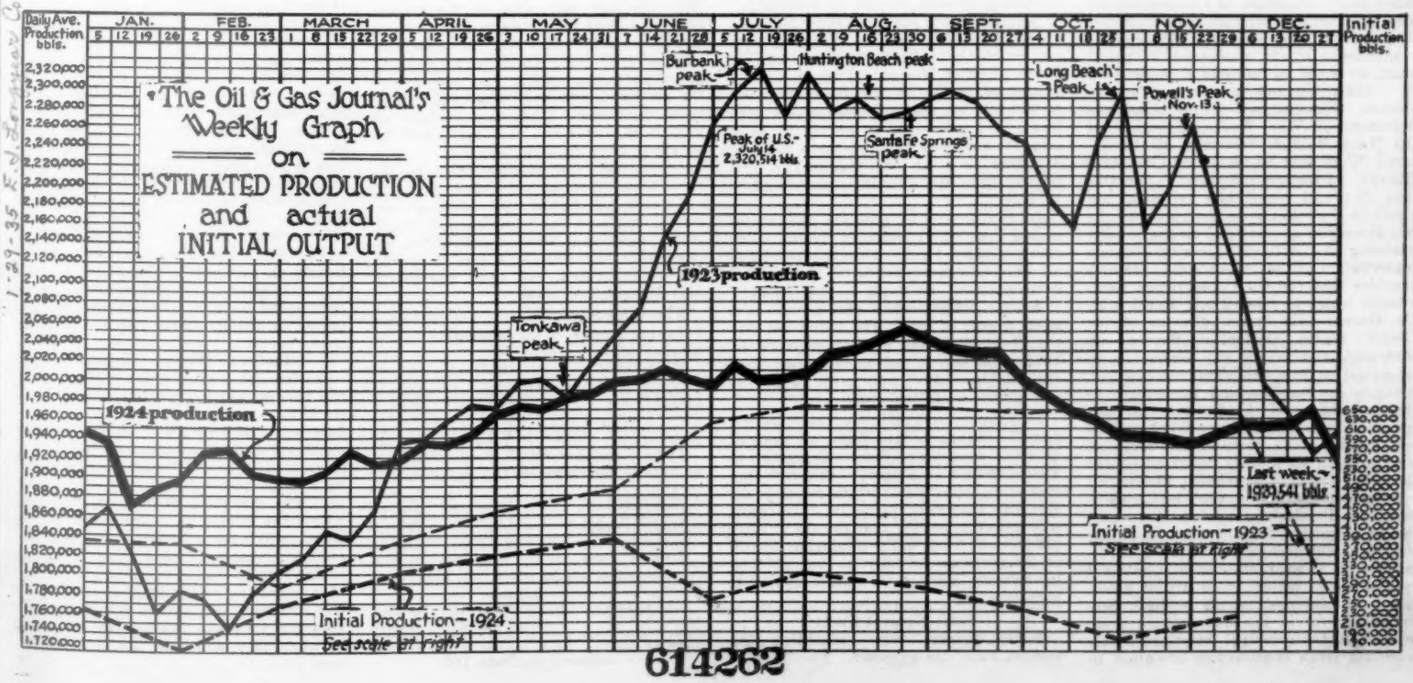
A number of the large pipe line companies, especially in the Mid-Continent area, have been making fairly heavy withdrawals of crude oil from their storage for some time. This is a healthy condition as far as the industry is concerned and will go a long way towards bringing about a general crude price advance. The industry at this time is marking time as far as price changes are concerned until Wortham shows definitely what may be expected there.

PRODUCTION IN THE UNITED STATES

Estimated daily average crude oil production in the United States for the week ended December 27, and a comparison with previous week follows:

	Dec. 27	Dec. 20
Oklahoma—Northern Fields:		
Tonkawa	99,415	104,940
Burbank	64,390	70,245
Other Osage Fields	39,325	40,080
Cushing and Shamrock	23,430	23,540
Bristow and Eastern Bristow	38,670	39,025
Cromwell	37,180	42,380
Papoose	29,770	31,965
Northern Miscellaneous	96,250	99,220
Southern Fields	66,670	67,720
Total Oklahoma	495,100	519,115
North Louisiana	49,346	51,265
Arkansas—		
El Dorado and Calion	10,460	10,410
Smackover Light	28,490	31,535
Smackover Heavy	63,835	65,550
Stephens and Nevada	3,290	3,281
Total Arkansas	106,075	110,776
North Central Texas	119,705	132,035
Powell	63,200	62,700
Mexia, Currie, Richland, etc.	42,850	42,835
Wortham	55,000	43,300
Kansas	82,500	86,500
Total Mid-Continent Area	1,013,776	1,048,526
Gulf Coast	75,500	75,605
Southwest Texas	46,135	46,340
Eastern	105,100	107,475
Rocky Mountain Area	73,530	84,710
California—		
Santa Fe Springs	51,000	51,000
Long Beach	127,000	127,000
Huntington Beach	39,500	40,000
Torrance	44,000	44,000
Dominguez	58,000	60,000
Remainder of State	296,000	291,000
Total California	615,500	613,000
Total United States	1,929,541	1,975,656

DECREASE, 46,115 BARRELS.


The Oil & Gas Journal's Weekly Graph on ESTIMATED PRODUCTION and actual INITIAL OUTPUT
Daily Ave. Production bbls.
JAN. FEB. MARCH APRIL MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Initial Production bbls.
Burbank peak
Huntington Beach peak
Long Beach Peak
Powell's Peak Nov. 13
Peak of U.S. July 14 2,320,514 bbls
Santa Fe Springs peak
1923 production
Tonkawa peak
1924 production
Last week 1,931,541 bbls
Initial Production—1923 See scale at right
Initial Production—1924 See scale at right

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Varying Views on Oil Commission

May Be Most Constructive Move Taken For the Industry But Elements in the Situation Cause Some Uneasiness

By L. M. Fanning

President Coolidge's creation of a Federal Oil Conservation Board, composed of four Cabinet officers, may prove the most constructive move taken for the industry since its inception. It is too early to judge just what the activities or the effect of this commission's deliberations will have upon the petroleum business. There are elements in the situation which might turn out to be of a destructive nature. But granting that there is an oil problem, that the Government has a direct interest in connection with its oil holdings and in the matter of national defense and conservation, and bearing in mind the calibre of the commission and the fact that the petroleum industry has been asked to participate in the investigation, the conclusion is justified that the President's action has possibilities of great accomplishments. The problem of oil conservation, which the President clearly indicates, is inseparable from the problem of a stable oil industry, will be attacked from every angle and have the benefit of exhaustive consideration by those in Government and industry circles best qualified to work out a solution. From the standpoint of the petroleum industry the importance of the appointment of the new board cannot well be overestimated. It marks the beginning of what will doubtless develop into a definite Government oil policy. President Coolidge, in creating the board, was actuated, according to his statement, by consideration of the country's defense. He states that the supremacy of Nations may be determined by the possession of available petroleum and its products. It is interesting in connection with the appointment of the board to point out that the importance of petroleum led the British Government to the creation of a Petroleum Department during the World War. The personnel of this department had high rank in the Government and the department functioned as a separate entity some time after the close of the war. It enabled the British Government to crystallize its definite and now well known oil policy.

Board Is Unique

That the President has seen fit to establish a board comprised of Cabinet officers who will lend a prestige and draw for their advice upon the four Government departments chiefly concerned in petroleum, gives the oil industry a commission of a character and importance entirely unique. The members of the board are Secretary of War Weeks, Secretary of the Navy Wilbur, Secretary of the Interior Work and Secretary of Commerce Hoover. President Coolidge stipulates that they call upon their technical advisers in the bureaus to contribute to the full discussion of ways and means of safeguarding the national security through conservation of the Nation's oil. He also provides that the Oil Conservation Commission which he created last March with Dr. George Otis Smith, director of the United States Geological Survey, as chairman, and which has conducted an investigation into the naval oil reserves, continue to function and participate in the conferences of the Federal Oil Conservation Board. Secretary Work, who is mentioned as the probable chairman of the board, in his annual report advocated the formation of a permanent Federal oil commission similar to that now constituted by President Coolidge, "to study the conservation of oil deposits and more thorough and economical methods of recapture, to be comprehended in a national continuing oil policy, is an urgent necessity in the interests of the public." Secretary Hoover in his study of the problems of all the principal American industries has given considerable attention to the oil business, without this fact being generally known. His presence on the board is looked upon with particular favor by those who hope for some practical solution of the petroleum problem.

President Recognizes Oil Too Cheap

A significant feature of President Coolidge's letter to the Secretaries appointed to the board, is his recognition that petroleum products are selling too cheaply and that overproduction has demoralized intrinsic values. This is particularly noteworthy when it is considered that the President is serving warning on the public that it must expect higher prices. His position is that overproduction in itself encourages cheapness, which, in turn, leads to wastefulness and disregard of essential values. His views, as interpreted from his letter, is that a continuation of the situation which has prevailed for several years, might mean an eventual shortage with consequent serious results to the industrial activities of the country dependent upon oil. That the Federal Oil Conservation Board will give the industry ample opportunity itself to adjust its situation is indicated in the letter, but it is also clearly shown that the President believes the industry needs Federal aid in making leasing, royalty and drilling practices conform to a broad policy of stabilization and conservation. The industry is probably chiefly concerned in his significant statement that the future might be left to the simple working of the law of supply and demand "but for the patent fact that the oil industry welfare is so intimately linked with the industrial prosperity and safety of the whole people that government and business can well join forces to work out their problem of practical conservation." This indicates a view favorable to legislation which will have as its object a special treatment for oil production not entirely dictated by the law of supply and demand, and raises questions of economics of the most serious kind.

Reassuring Features

A careful study of President Coolidge's letter announcing the formation of the board, brings out several points of a decidedly reassuring nature, insofar as the petroleum industry is concerned. There is little doubt but that developments of the last few years have brought about a trend of opinion in Government and public circles, as well as in the industry itself, favorable to some form of Government regulation of the industry. It is conceivable that this trend, allowed full play, could result in legislation of the La Follette type particularly damaging to the industry and with possibilities of incalculable hurt to the public interest. The President's action removes any possibility of hasty and ill-considered legislation. Furthermore, the President showed appreciation of the larger interests involved in the problem, by an appointment of a new board, rather than putting the problem in the hands of the Federal Trade Commission. Not only is the investigation kept out of the hands of the Federal Trade Commission, but it is removed from Congressional committee rooms. Both of these points are of particular pertinacy when the recent investigations by the commission and the Senate Committee on Manufactures are considered. Probably the most evident fact of the President's intentions for a thorough and business-like investigation is his inclusion of the oil industry in the proposed conferences. He asks the board to enlist the full cooperation of representatives of the oil industry in the investigation. This will give the industry opportunity to present its problems in the most exhaustive manner and for those with plans for industry stabilization to have a full hearing.

Announcement Surprise

While knowing that President Coolidge has for some time been engaged in formulating an oil policy, the announcement of the formation of the new board came as a surprise to most of the leaders of the petroleum industry. It was not preceded by any intimation that such a plan had reached the point of consummation. Secretary Work's recommendation was regarded as probably forecasting some such development but it was not thought that immediate action would be taken. To those who have been closely following the Government's attitude toward oil it is now apparent that the President has been largely guided by the views of the bureau heads in the Department of the Interior. Dr. Smith, head of the Geological Survey, and J. Foster Bain, director of the Bureau of Mines, have advocated that the Government take an active interest in the affairs of the petroleum business, in view of the waste encountered in commercial development and the lack of stability in the industry. It is generally conceded, also, that Henry L. Doherty, president of H. L. Doherty & Co., whose unit plan of producing oil, has received a god deal of attention recently, has made several converts to his plan in Washington. In fact, it may be said with some certainty that Mr. Doherty has had a great deal to do with this latest development.

Doherty Idea in Washington

There is little doubt but that Mr. Doherty has "sold" his plan to Washington officials. Dr. Smith has publicly advocated some such plan as the Doherty program. However, this does not mean that the new board is committed in any way to the Doherty plan, but rather that the members will take it as a definite starter in their investigation. This will give Mr. Doherty an opportunity of thorough presentation which will put his plan more prominently before the industry and the public than it has been up to the present time. Some industry leaders interviewed as to the new board, said that one of the chief dangers was that, out of the variety of plans which are bound to be presented by everyone who thinks he has a solution, a plan may be adopted which would in practice interfere with the free operation of the industry and would in the end do great injury. The board as created will have no authority itself to regulate oil production and distribution. It is merely an advisory commission. It will, however, after its investigation, probably recommend legislation which will be supported by the President and the Government bureaus.

Institute Directors to Meet

Advices from Washington indicate that the Federal Oil Conservation Board will start its hearings in January. The industry has had no direct word from the members of the board and no indication, at this writing, as to when hearings will be held or just what the procedure will be. The American Petroleum Institute, which has offered to cooperate with the board, will hold a special meeting of directors probably in New York sometime in January to decide on ways and means of cooperating with the Federal Board. The directors also have a meeting scheduled for Colorado Springs on February 9, when they will take up the Doherty unit plan.

DECLINE OF THE "GOLDEN LANE" FROM PEAK PRODUCTION IN 1922

By N. O. Fanning

NEW YORK, Dec. 27.—The Oil and Gas Journal has received a letter from a subscriber reading in part as follows:

"On the first page of your issue of July 31, 1922, N. O. Fanning had an article headed 'Swan Song of the South Field of Mexico.' Time is a great prover of fact. At the time, we were of the opinion that this was a misstatement, and believe if it proves to be a misstatement now (and the facts must be available to your organization) a disclaimer from Mr. Fanning's pen would be in order."

In the article in question the writer stated that "the curtain is ringing down on the Golden Lane. This is the opinion of oil men conversant with Mexican oil developments," or words to that effect.

As our correspondent states, time is a great prover of fact. The writer believes the time that has elapsed since July, 1922, has offered convincing proof that the "Golden Lane" will never repeat its performances of 1920-1922.

It cannot be said that the "Golden Lane" — that is, the light oil area of Mexico stretching from Tepetate to Tierra Blanca or Alamo — will ever stop producing oil. Few oil fields ever do. But the statement made in July, 1922, was meant to convey that the era of huge production from wells producing 50,000 to 250,000 barrels daily in that particular stretch called the "Golden Lane" is definitely past.

Some General Facts

Some general facts regarding the Golden Lane are in order. The "Golden Lane" has produced during the last few months a daily average of about 100,000 bbls. of crude oil. One of the largest buyers of light oil stated to The Oil and Gas Journal the other day that efforts to buy light oil were fruitless, because no additional output above that already being produced was available—which indicates that actual production of light oil now is at about the best that could be obtained from existing pools.

During the few months prior to the publication of the article of July 31, 1922, production of the light oil fields, according to figures of the Wall Street Journal, which were used above, particularly because that financial paper was quoted by the correspondent, ran from 225,000 to over 500,000 bbls. daily.

The Wall Street Journal published the following figures of oil production of the south fields:

Week ended—	Barrels	Daily
June 3, 1922	3,087,000	441,000
June 10, 1922	3,045,000	435,000
June 17, 1922	3,020,000	431,000
June 24, 1922	3,264,000	466,000
July 1, 1922	3,732,000	533,000
July 8, 1922	3,351,000	478,000

During October, 1922, production was as follows, according to the same authority:

October 7, 1922	1,876,000	268,000
October 14, 1922	1,850,000	264,000
October 21, 1922	1,796,000	256,000
October 28, 1922	1,862,000	266,000

During June, 1923, and July in the corresponding weeks given for 1922, production is given as follows:

June 2, 1923	1,171,000	167,000
June 9, 1923	1,119,000	159,000
June 16, 1923	1,081,000	154,000
June 23, 1923	1,048,000	149,000

(Continued on Page 116)

Lubricating Oil Production in U. S.

Some Surprising Facts Developed by Study of Production and Consumption Over the Past Few Years. Expansion in Exports

By Charles E. Bowles

From January 1 to September 30, 1924, the refineries of the United States made enough lubricating oil to fill 82,000 tank cars—and make a train 620 miles long.

On the basis of the total crude oil run to stills by all of the refineries of the United States during the first nine months of 1924, one barrel of lubricating oil was made for each 25 bbls. of crude oil handled—a recovery of 4 per cent.

In the year 1923 the refineries ran 592,500,000 barrels of oils to stills and made 26,128,000 barrels of lubricating oil—or an average recovery of 4.4 per cent.

In the six years from January 1, 1917 to December 31, 1922, a total of 2,411,000,000 barrels of oils were run to stills from which 127,270,000 barrels of lubricating oil were made—or an average of 5.3 per cent.

It would thus appear that in the period since the beginning of 1917—almost eight years—the percentage of lubricating oil was slowly growing less, even though the annual output has grown from 17,947,000 barrels in 1917 to 26,128,000 barrels last year.

Obviously lubricating oils are used in a much wider ranger of industries than either gasoline, kerosene or fuel oil. And the relatively small increase in our domestic consumption of lubricating oils of all kinds, from 13,822,000 barrels in 1918 to 17,620,000 barrels in 1923, comes as something of a surprise as in these six full years the increase only amounted to a little less than 28 per cent, or an average increase of 4.6 per cent per year.

Greater Variety of Products

From a refining standpoint there are about 30 essentially different grades of oil handled by the refineries of the United States—and with the opening up of new fields the number of different crudes is increasing.

The pressure of the need for larger markets has resulted in an outstanding disposition on the part of refiners to "make to order" a constantly increasing number of products, specially adapted for certain industries, and to be used within a clearly defined range of operating conditions, hence calling for rigid manufacturing specifications.

The refiners' problems are gradually becoming more complex, not only on account of the increasing number of different crudes to be handled, but also on account of the increasing number of uses that industry is finding for petroleum products that are "specially made for specific uses."

This outstanding disposition on the part of refiners to render a greater service to industry by first analyzing the widely varying conditions under which different petroleum products are to be used in different industries, and then making the products to exactly fit the conditions, is nowhere more outstanding than in the making of lubricating oils.

Whether a barrel of crude oil is approached from the standpoint of the maximum amount of gasoline that can be recovered from it, or of kerosene, or of lubricating oil, or of fuel oil—or of the "economic balance" of all of them, dependent on varying crudes and fluctuating markets—the essentially different characteristics of different crudes is the starting point from which all other "variables" are reckoned.

Nothing could more clearly emphasize these fundamental differences in crude oils—and in refinery practice—than the following tabulation showing, for each of the refining areas of the United States, for 1923, the barrels of oils run to stills and the lubricating oil made, with the percentages:

Area—	Barrels	Lubricating oil Barrels	Per cent
East Coast	121,613,000	7,475,000	6.1
Pennsylvania	21,441,000	3,988,000	18.6
Indiana	51,732,000	2,526,000	4.9
Oklahoma-Kansas	71,684,000	1,956,000	2.7
Texas	105,515,000	6,809,000	6.4
Ark.-Louisiana	41,753,000	611,000	1.4
Colorado-Wyoming	27,637,000	457,000	1.7
California	151,126,000	2,306,000	1.5
Total	**592,501,000**	**26,128,000**	**4.4**

Recovery of Lubricants

The lubricating oil recovery in the Pennsylvania area (18.6%) is easily the outstanding fact of this tabulation. This area includes the refineries of western Pennsylvania, western New York, West Virginia and eastern and central Ohio. In 1923 the crude oil refined in this area could have come from only three producing areas: (1) that which was produced locally, (2) from the States to the west (Indiana, Illinois, Kentucky, Tennessee), (3) from the Mid-Continent. As the refineries in the "Indiana" area and in the Oklahoma-Kansas area produced 4.9 and 2.7 per cent of lubricating oil respectively, it is obvious that the refineries in the "Pennsylvania" area obtained their abnormally high yield (18.6%) from their own crude, a large part of which is the finest "lubricating oil crude" in the world.

The East Coast refineries (New York harbor, Philadelphia, Baltimore, Providence and Boston) operate on crude oils of about as widely differing qualities, but of about the same average quality, as the Gulf Coast refineries. This is indicated by an East Coast recovery of 6.1 per cent and a Gulf Coast recovery of 6.4 per cent.

The Indiana area refineries made 4.9 per cent of lubricating oil compared with 2.7 by the Oklahoma-Kansas refineries although the refineries in both areas operated on crude of substantially the same quality.

Taking into consideration the relative qualities of the crudes produced in the Arkansas-Louisiana area, the Rocky Mountain area and in California, it is interesting to note that the Arkansas-Louisiana refineries made 1.4 per cent of lubricating oil, the Rocky Mountain refineries 1.7 per cent and the California refineries 1.5 per cent.

Production by Areas

Referring to Table 1 we note that in the first nine months of 1924 the East Coast refineries made 28.3 per cent of the lubricating oil made in the United States—that the Pennsylvania area made 15.7 per cent—and the Indiana area 9.2 per cent. In other words, from January 1 to September 30, 1924, the refineries east of the Mississippi made 53.2 per cent of the country's output. In the year 1923 this same area produced 53.5 per cent of the total output.

In the first nine months of 1924 the Oklahoma-

(Continued on Page 112)

Table 2—Production, Consumption, Imports, Exports and Stocks of Lubricating Oil, January 1 to September 30, 1924—Also for same Period of 1923. All Amounts in Gallons.

Month—	Stock First of Mo.	Domestic Production	Imports	Exports	Domestic Consumption	Stock Last of Mo.	Excess of P. & I. Over C. & E.
January	242,785,070	94,534,650	2,897	25,175,405	68,923,103	243,224,109	439,039
February	243,224,109	93,824,414	32,566	33,526,615	49,709,093	253,845,381	10,621,272
March	253,845,381	101,126,865	29,436	40,664,791	64,547,865	249,789,026	*4,056,355
April	249,789,026	96,966,565	18,617	34,261,964	61,464,800	251,047,444	1,258,418
May	251,047,444	104,438,537	223,419	46,783,286	65,193,708	243,732,406	*7,315,038
June	243,732,406	96,994,523	26,965	33,500,017	58,667,905	248,585,972	4,853,566
July	248,585,972	87,489,694	54,289	25,156,414	65,347,672	245,625,869	*2,960,103
August	245,625,869	92,761,392	4,641	29,271,086	66,367,924	242,752,892	*2,872,977
September	242,752,892	90,227,655	1,525	24,855,659	64,977,200	243,149,213	396,321

*Withdrawn from stock.

Table 3—Lubricating Oil Balance Sheet, January 1, 1918, to September 30, 1923—in Gallons

Year—	Stock January 1	Domestic Production	Imports	Exports	Domestic Consumption	Stock December 31	Excess of P. & I. Over C. & E.
1918	136,855,342	841,465,767	*.....	258,917,976	580,549,559	138,853,574	1,908,232
1919	138,853,574	846,760,017	*.....	277,115,681	571,178,976	137,318,934	†1,534,640
1920	137,318,934	1,046,708,349	*.....	405,001,767	618,503,039	160,522,477	23,203,543
1921	160,522,477	877,859,074	*.....	291,342,839	530,273,196	216,765,516	56,243,039
1922	216,765,516	978,752,469	1,808,414	333,483,821	628,107,791	235,734,787	18,969,271
1923	235,734,787	1,097,368,222	1,219,133	351,599,047	739,938,025	242,785,070	7,050,283
1924	242,785,070	858,364,295	394,355	293,195,237	565,199,270	243,149,213	364,143

*Statistics for imports of lubricating oil not separately compiled prior to October, 1922.
†Withdrawn from stock.

Table 1—Production of Lubricating Oil, by Districts, January 1—September 30, 1924. Also for the Full Year 1923. All Amounts in Gallons.

Month—	East Coast	Pennsylvania	Indiana	Okla.-Kans.	Texas	Ark.-La.	Rocky Mt.	California	TOTAL
January	25,156,109	13,822,292	10,266,231	6,737,227	25,432,737	2,648,944	1,080,545	9,390,565	94,534,650
February	25,032,639	15,107,986	9,196,025	7,022,837	24,253,132	3,237,871	1,123,787	8,841,137	93,824,414
March	30,519,096	16,001,809	8,402,354	7,300,340	25,668,191	2,115,360	1,606,530	9,513,185	101,126,865
April	30,769,104	15,966,385	8,646,562	7,405,143	22,298,951	3,077,788	1,848,135	6,954,497	96,966,565
May	32,132,894	16,296,287	9,108,621	9,118,395	25,861,448	3,524,818	1,320,621	7,095,453	104,438,537
June	30,872,239	14,368,972	9,111,961	7,919,154	21,759,037	2,298,606	1,897,922	8,765,632	96,994,523
July	24,549,266	13,717,681	8,341,227	7,349,862	19,954,334	2,857,084	1,632,814	9,087,426	87,489,694
August	28,254,701	14,498,108	7,984,957	7,814,158	21,534,679	2,286,564	1,789,043	8,599,182	92,761,392
September	25,462,261	14,934,598	8,112,489	7,716,657	21,151,483	2,189,404	1,701,689	8,959,074	90,227,655
9 Months	252,748,309	134,694,118	79,170,427	68,383,773	207,913,992	24,236,439	14,001,086	77,206,151	858,364,295
Per Cent	28.3	15.7	9.2	8.0	24.2	2.9	1.7	9.0	100.0%
Areal Percentage		53.2			35.1		1.7	9.0	100.0%
1923 Year	313,978,717	167,511,783	106,088,408	82,141,452	285,951,356	25,677,611	19,173,283	96,845,612	1,097,368,222
Per Cent	28.6	15.2	9.7	7.5	26.1	2.3	1.7	8.9	100.0%
Areal Percentage		53.5			35.9		1.7	8.9	100.0%

Fuel Oil and Distillates Strong

Strong Demand and Limited Supply Bring Advances in All Grades in Oklahoma. Gasolines Continue Weak With General Lowering of Prices

By C. O. Willson

The strength shown by fuel oils including gas oils and distillates and the reactionary trend in all grades of straight run gasoline continued to feature developments in the Group 3 (Oklahoma) refined market during the past week. The advance in refined products used as fuels during the past few days has been nearly as sensational as that in motor fuels the latter part of November and the first few days of December.

An advance of 10 cents in all grades of fuel oils materialized the latter part of last week. The product has occupied a relatively strong position since early fall and the buying in the open market has been especially heavy since the middle of the month. This has applied to the entire Mid-Continent area. Some of these purchases have come from distant points but so far as Group 3 is concerned buyers within the State of Oklahoma have been largely responsible for the higher prices. The cold weather brought additional orders from the public utilities and the industrial consumers. Individual orders have not been large but the total has about absorbed all the material the refiners had available for shipment this month outside their contracts and previous commitments. In addition to this, one important railroad buyer has found it necessary to enter the market and has taken all the fuel oil available from refiners whose plants are located on his line.

The long delayed demand for distillates explained in these columns last week continues up to the present time. Sellers have found that a ⅛- to ¼-cent advance in their quotations has not stopped the flow of orders and inquiries from jobbers of the Middle West who are primarily concerned in getting supplies sufficient to satisfy the unexpected demand from consumers who in turn are burning maximum quantities due to the cold weather prevalent throughout the Mid-Continent marketing territory.

Only scattered changes developed during the week in other products. A temporary slump in the production of natural gasoline varying from 10 to 40 per cent at many Oklahoma plants, coupled with more buying activity for Grade C which has been the weakest product, has made it possible to maintain the prices of a week ago in all grades despite the slump in straight run and blended gasolines. Kerosenes are still dull but the outlook for higher prices is generally regarded favorable. With the better grades of distillates bringing as much as the lower gravity kerosenes, it is apparent that there must be a price lowering in the former, else an upward trend is assured for the latter product. Manufacturers of lubricating oils report little change in their markets and the same is true of wax.

January Outlook

For several days considerable interest has been displayed in the January market. Many resale agents were willing to buy fuel oil and in fact all products which are strong for January delivery based on the present spot quotations. It is believed any changes in these products during the coming month will be upward with a demand which will assure that sellers will have no difficulty in disposing of their output. Some believe distillates will not go any higher but if the cold weather continues others are confident a record consumption will force all grades above the 4-cent level, provided the expected tank wagon advance materializes in the Standard of Indiana territory.

In regard to gasolines, including the natural gasolines and blends, the trade generally is undecided. In asking for views in regard to January gasoline, the writer has found the trade about equally divided in optimism and pessimism. The latter feel that the relatively high fuel and distillate prices will tend to keep plants running at their present high operating status which will flood the market with gasoline, the consumption of which will not begin to improve for at least two or three months.

They point to the fact that 75 per cent of the refiners in the Mid-Continent area have very little storage capacity for gasoline and as soon as their December gasoline is shipped it will not take long to fill this available storage provided the January demand from domestic jobbers is reduced to a minimum. The remaining 25 per cent of the refiners, which are the major concerns, have plenty of empty tanks and will start in January to fill their storage, regardless of developments in the gasoline market. The so-called "distress" gasoline which demoralized the gasoline markets last spring and the spring before will not come from them. With these plants eliminated the only question is concerned with whether or not the demand will be sufficient to absorb the excess output of the smaller refiners.

Crude Price Changes

In this connection a development of the past week in the crude market has been discussed in relation to the probable refined market trend the first month of the new year. On Saturday of last week the first important crude advance was made effective in the Pennsylvania pools. On Monday this upward trend was brought closer to home when two independent refiners at Enid, Okla., announced they would pay $1.50 for the high gravity crudes of the Tonkawa and Billings Pools.

These developments immediately raised the question whether the advances were to spread to other pools in the Mid-Continent area. Although agreeing that a definite prediction as to the crude price in the Mid-Continent area at this time is a hazardous undertaking a majority of the leading market observers are inclined to minimize the immediate importance of the crude price changes previously mentioned.

They believe both advances were due to conditions which at the present time are largely confined to the fields affected. In regard to the Pennsylvania advance they point to the fact that last year four advances were made in the highest priced grades and three in the lower grades before the first advance was announced by the Prairie Oil & Gas Co. The first advance in Pennsylvania crudes was announced last year on December 14 and it was not until January 9 that the Prairie announced its initial advance in the Mid-Continent. Pennsylvania producers have been holding their crude output for higher prices and have practically forced the buyers to raise the posted schedules. In Tonkawa, where the crude is above 40 degrees Baume in gravity, the situation also differs from most of the major pools of the Mid-Continent. With the top price of the major purchasers applying to crude of 36 degrees gravity Baume and above, smaller buyers ever since the present posted schedule was announced last September have been paying a small premium for the high gravity crude. As one refiner who has been paying the premium explains the situation, "if crude of 36 degrees to 38 degrees gravity is worth $1.25 with a few refiners paying premiums over the posted price, then crude which is above 42 degrees Baume is certainly worth $1.50 a barrel."

Market observers also emphasize the fact that the new Wortham Pool in Texas is yet to reach its peak and they do not expect any general tightening in the Mid-Continent crude markets until it is definitely known that the production of that pool is declining. Cold weather has delayed development in the pool and it is agreed it will be February 1 at least before the producing possibilities of the field are known.

In the event these opinions are sustained it will assure that the refined market during January will not be disturbed by a general advance in Mid-Continent posted crude schedules which in turn would probably mean that gasoline tank wagon prices will not be changed during the month in the Standard of Indiana territory. With the crude and tank wagon markets unchanged, these market observers will do well to hold its own during January. In this connection one veteran refinery sales manager predicts that present prices on gasoline will prevail over January within ½-cent. This same sales manager believes fuels and distillates will continue strong but does not anticipate any important price changes unless his prediction in regard to crude price trend proves wrong and posted schedules are advanced.

REFINED MARKET BAROMETER

Developments in refined markets throughout the United States east of the Rocky Mountains during the past week continued to be largely dominated by weather conditions. Gasoline consumption has been reduced to a minimum in many sections and the resulting slow up in demand has brought additional concessions in spot prices at refineries. This situation does not apply to the West Coast where prices are firm with advances in some grades of natural gasolines. The cold weather has strengthened the demand for fuel oils and distillates especially noticeable at interior points and premium prices are being paid in many instances in order to secure immediate shipment. Due to the heavy distillate demand improvement is expected in kerosenes which have been generally weak for several weeks. The demand for lubricating oils is spotted but lower prices prevail where changes have been made during the past week. The wax market is active in all sections.

Mid-Continent—Strong demand for all refined products used as fuel and prices on fuel oils, gas oils and distillates are higher in all areas. Straight run gasolines and blends weak with ¼ to ¾-cent reductions in all grades. Little change in natural gasolines. Kerosenes slow. Cylinder stocks only active feature of lubricating oils.

Atlantic Seaboard—Domestic market quiet. Higher prices expected in fuel and gas oils. Heavy shipments of gasoline, kerosene and lubricants feature export market. Heavy exportation of wax.

Pennsylvania—Crude advance expected to check decline in gasoline market. Kerosene soft. Fuel oil strong. No change in cylinder stocks and neutrals.

Gulf Coast—Red and pale oil quotations off ½ cent. Fuel and gas oil market strong.

Chicago—Little demand for motor fuels due to weather conditions. Distillates and fuel oils active and price higher.

The U. S. Motor 58-60 gasoline was available at 7¾ cents to 8 cents on Monday and Tuesday of this week. Sales have been made at both prices over January although there has not been as much forward buying as there was during the bull movement of late November. Resale agents are uncertain as to the future and any January sales they have made they have usually covered immediately. Many refiners will continue to make shipments on December gasoline until the end of this week. Several refiners state they do not expect to lower their prices below the present levels. They will take care of their regular customers if prices go lower but will not actively solicit new business. They expect to run considerable gasoline to storage during January.

The higher gravity gasolines also slumped during the week. The 60-62, 400 grade is available at 9 to 9¼ cents, although several refiners are refusing to lower their 9½-cent quotation of the previous week. Sales of 64-66, 375 have been made for domestic shipment as low as 10¼ cents. The 68-70 grades are available at 11¼ to 11½ cents. Naphtha is offered freely at 7¼ cents.

Natural Gasolines and Blends

There has been more buying of natural gasolines during the past few days. Part of this buying came from brokers who were sold short for December shipment and waited until the last week of the month with the view of obtaining a maximum profit. Grade C, which had experienced the greatest slump in price was benefited by this buying. In addition the Chestnue & Smith Corporation entered the market again last week. These purchases were rapidly absorbing all the Grade C available at 7¾ cents. The reduction in production due to cold weather has caused several manufacturers to withdraw their quotations on both Grade A and Double A. They state it will require one to two weeks in January to catch up with their orders for those grades. Weather conditions became more favorable the first of the week and it is expected production will be back to normal before the end of the week. The A grades were generally bringing 8¾ cents with a price range of 8¼ to 8½ cents for Grade B and Grade Double B.

Blenders have reduced their prices in line with the reduction of straight run gasolines. The demand from the northern buyers continues fair.

Kerosenes and Distillates

The 38-40 straw distillate advanced to a low of 4 cents on Monday. Sales were being made at that price with several refiners asking as high as 4⅜ cents for immediate shipment. The lower gravities took the same advance, so by the first of this week there was practically no material available under 3¾ cents. Premium prices were being asked for the zero cold test distillates.

The trade has been somewhat surprised that kerosene prices have not advanced. The 41-43 water white grade was still available on Tuesday at 4¼ cents with no changes in the lower or higher grades. Some expect the distillates to recede slightly in price as soon as the weather changes but not enough to bring the normal price relationship between kerosene and distillates. One refiner is reported to have used his kerosene storage in making up his distillate shipments and this action will certainly become more general unless kerosene prices are advanced.

Fuel and Gas Oils

The buying of fuel oils last week brought a firm market of $1.25 for all grades between 20 degrees and 26 degrees

(Continued on page 30)

Petroleum Conservation and Profits

Problem to Find Method to "Constructively Retard" the Bringing of Oil to the Surface. Overproduction in Crude and Refined

By Charles E Bowles

Very obviously President Cooldige had one outstanding thought in mind when he created the Federal Oil Conservation Board—to "constructively retard" the bringing of crude oil to the surface of the ground, as a means of preventing overproduction.

The very essence of the principle of conservation, as applied to oil, is to produce less of it. That is the most effective way that conservation can be applied to the raw material end of the oil industry.

Likewise, the essence of conservation, as applied to the operation of a refinery, is to get larger values out of the crude oil.

And the fundamental purpose of oil conservation is not accomplished if it does not include the ultimate consumer's use of the finished products in such ways as to get the greatest possible values out of them.

Hence, in the broadest and most effective sense of the word, conservation is a three-sided responsibility resting equally upon the producers of crude oil, the refiners, and the millions of users of petroleum products.

Even though the United States, from the standpoint of raw material resources, is the most richly endowed nation in the world, this awakened responsibility for conserving our exhaustible resources is reassuring, especially as the President approaches the petroleum industry from the angle of what he he terms "overproduction" and its uneconomic results.

The phrase from his letter—"overproduction in itself encourages cheapness"—will appeal strongly to the oil industry as it is an indirect expression of his conviction that the "overproduction price" of crude oil is out of line with "essential values."

Having clearly in mind some of the legal but antiquated pitfalls that lie in the pathway of the industry's trying to "control" the production of its crude oil, supplemental to the natural operation of the "Law of Supply and Demand," the President has relieved the situation by taking the initiative and asking the industry to cooperate in an effort to solve one of its most difficult problems.

Table 1—Production and Value of Crude Oil to End of Year 1923

Period	Barrels	Value	Per Bbl.
1859-1920	1,003,605,000	$1,026,939,000	$1.02
1901-1916	2,913,723,000	2,275,349,000	.78
1917-1920	1,512,540,000	3,347,590,000	2.21
1921-1923	1,762,121,000	2,812,966,000	1.60
Totals	....**7,191,989,000**	**$9,462,844,000**	**$1.31**

Conservation in Cracking

That the President had in mind the working out of a practical program of conservation applied more particularly to the procuring of crude oil, is obvious—and it is equally obvious to the oil industry that the essential purpose of conservation is the basic principle back of present-day refining practice. The best proof of how effectively the refiner has worked out and practically applied the idea of conservation is found in the greater relative value of the products from a barrel of oil refined in 1924 as compared with a barrel refined a dozen years ago.

And it is well to bear in mind that these amazing advances in refinery equipment and refining practice have been worked out, not under the spur of either an actual or an impending "shortage" of crude oil—but rather, in the face of an almost constant "overproduction."

The conservation of crude oil, after it reaches the surface, has also made remarkable advancement in the last few years—and probably is not surpassed in the storing of the raw material of any other industry.

Hence "the oil industry's interpretation" of the President's idea of conservation would be that its direct, specific operation would be to retard the bringing of oil to the surface of the ground.

The oil industry knows, only too well, the serious consequences to producers, to refiners and to marketers when too much crude oil is brought to the surface—for the industry itself has been the sufferer from, and the public has been the beneficiary of, the low prices that have traveled swiftly and surely through every part of the industry as the result of what is usually referred to as "overproduction."

The idea back of the creation of the Federal Oil Conservation Board and the invitation to the industry to cooperate in the working out of a conservation program is a definite step toward the much-needed "constructive relationship" between our National Government and the oil industry. And, obviously, the members of the board and "the outstanding producers of petroleum" will begin their conferences on common ground.

And if differences of opinion should develop, they will spring from conflicting ideas as to the ways and means of practically conserving crude oil—and not from the conviction that crude oil should not be conserved.

(Continued on Page 110)

Table 2—Balance Sheet for 82 Months—January 1, 1918 to October 31, 1924

Item	Supply	Demand	Excess	Per Cent
Crude Oil, Bbl.	4,130,351,000	3,884,198,000	246,153,000	6.3
Gasoline, Gal.	39,181,084,000	38,440,967,310	740,117,404	1.9
Kerosene, Gal.	15,134,920,353	15,324,545,883	*189,615,480	..
Gas Oil-Fuel Oil, Gal.	68,485 374,005	67,451,687,223	1,033,686,782	1.5
Lub Oil, Gal.	6,647,934,277	6,536,791,121	111,143,156	1.7

*Withdrawn from stock.

FACTS THAT CONSERVATION BOARD MUST CONSIDER

The settled production from our 298,000 wells does not need any conservation other than careful nursing by their owners.

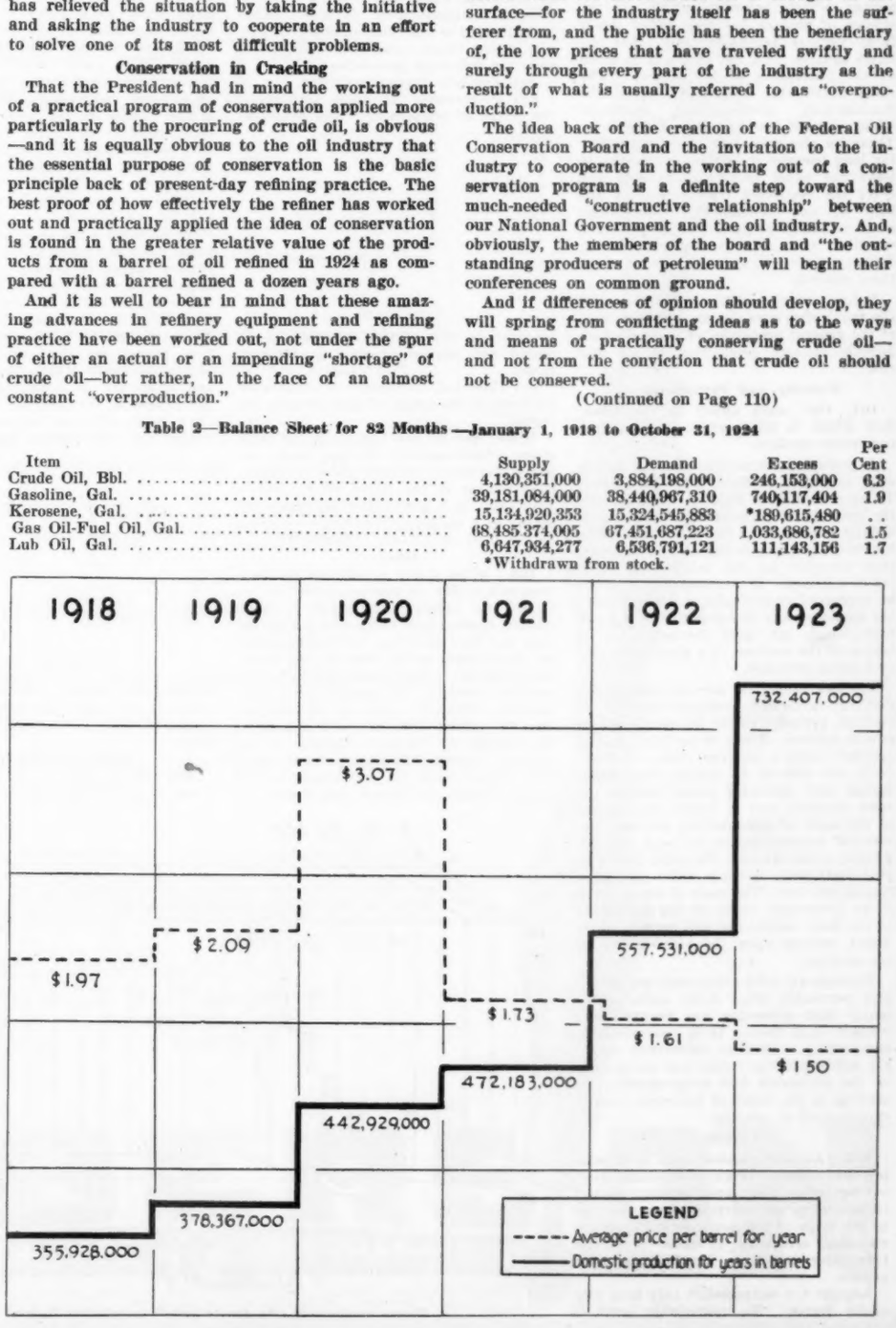
The only wells that could possibly cause overproduction are the relatively few in the new flush fields—an average of say 2,000 each year.

There is urgent need that in the effort to conserve crude by turning the spigot in our new fields we do not dangerously hamper the wildcatter who has been the "Columbus" to our new production.

The 300,000 wells that produced 720,000,000 barrels in 1924 will produce about 580,000,000 barrels in 1925 but the demand for crude in 1925 will be at least 750,000,000 barrels, or 170,000,000 more than will be produced from the wells producing at the close of 1924.

Modern refining has been developed to the point that economically has the same effect as an actual overproduction of crude oil by meeting the demand for motor fuel by using substantially less crude. Hence the producer is not the only person that could bring about a condition of overproduction. But obviously the refiner and cracking phases of the industry do not fall within the scope of any recommendations for legislative action from the Conservation Board.

If by "constructively retarding" the bringing of crude oil to the surface with the result that our stocks are materially reduced, there can be but one result to the price of crude oil—a very substantial increase.



Fluid Recovery From Oil and Gas Wells

Fifth of Series of Articles Deals With Laws of Physics Which Effect the Behavior of Reservoirs

By Stanley C. Herold
Petroleum Geologist, Stanford University, California

The laws of physics which specifically affect the behavior of reservoirs now require our attention. These laws are based upon careful observations and are quite universally accepted as correct, so far as matter in certain degrees of the ideal state ar concerned. Only by understanding the ideal can variations or discrepancies be recognized and properly treated in the solution of practical problems.

In the following articles the subject matter which belongs purely to the science of physics has been taken freely from various textbooks and other reliable sources. (A list of books is given at the conclusion of the series). The same authorities frequently supply the fundamental mathematical equations which express the meaning of the laws. These we also take, but we do not follow for long because it becomes necessary to leave the usual paths to one side and enter the restricted trail which, by the help of our fundamental conceptions given in the three preceding installments, wil lead us to clear conceptions of fluid delivery from oil and gas reservoirs of three controls.

Before entering upon a discussion of the particular laws, let us consider some of the general properties of matter which directly concern production of oil and gas.

Porosity and Permeability

101. Our main abject is the reservoir which is filled with a porous and permeable medium.

A geological formation, in order to act as a container of fluid, must be porous. To be a carrier of fluid, it must possess the property of permeability. Porosity is usually expressed in the percentage ratio between the space occupied by voids and that occupied by the solids and voids taken together. If permeability were to be expressed numerically, a definite number would specify the quantity of a given fluid which can pass through a given length of the medium in a given time and at a given pressure.

The two properties are obviously quite distinct, although permeability of a medium actually exists by virtue of its porous nature. There is no fixed mathematical relation between them, however. It is not difficult to imagine two sandstones with cemented grains having the same porosity, one of which, on account of the mode of cementation, possesses restricted communication between the adjoining pores, whereas the other has comparatively large openings which give freer communication. The mode of cementation is an important factor in the movement of the fluid toward the well because of its direct bearing upon the permeability of the medium.

Perhaps all solid substances are porous and permeable when fluids under sufficiently high pressures are brought into contact with them. It is convenient in engineering science to arbitrarily separate solids into the porous and nonporous, or the permeable and nonpermeable, according to the range of pressures usually encountered in practice.

Liquids

102. As distinguished from solid matter, fluids cannot retain their shape without support. They are therefore subject to flow when not prevented from doing so by the walls of the container. Fluids are classified according to their properties into three divisions: liquids, gases and vapors.

Liquids are compressible only to a very slight degree. No appreciable error is caused by neglecting this slight compression in engineering computations. They generally increase their volume with a rise in their temperature. (Water, between zero and 4 degrees Centigrade is an example of the exception). Liquids possess the property of presenting a "free surface" to gases and vapors, also to other liquids with which they will not mix. The free surface is, of course, the surface of contact between them. In the case of the porous medium where liquid and one of the other fluids are present, a multitude of minute free surfaces exists throughout the reservoir interior.

A perfect liquid, could such exist, would have the following properties:

(a) Absolute incompressibility.

(b) Permanency of state throughout the range of temperatures and pressures

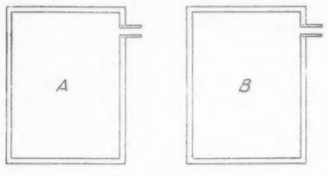


Figure 115

involved in any particular problem. It would not change to solid or gaseous form.

(c) Constant coefficient of expansion throughout the range of temperatures involved.

Water and oil are liquids in the same sense. Mathematical analysis makes no sharp distinction between them as long as they remain in the liquid state. When both exist in a given reservoir, they are acting in a cooperative manner according to the laws of delivery. (Article 39).

Gases

103. When a gas is confined within a reservoir it fills all interior space not occupied by solids and liquids. Gases possess elasticity of volume to a high degree for they may be easily compressed by the application of pressure and regain their original volume upon return to the original pressure. All gases appear to be miscible with other gases in any proportion by volume and they will appear to be soluble to varying degrees in all liquids. Specificially, hydrocarbon gases are soluble both in petroleum and in water, though not to the same degree.

A perfect gas is one which conforms exactly to Boyle's Law and to Joule's Law. It has perfect elasticity over the entire range of conceivable pressures; as a consequence, it would not change its state to that of a liquid upon excessive pressures. When no external work is performed by it, there is no change of temperature upon expansion.

104. While we know of no perfect gas in existence, some gases appear to behave more nearly to perfection than others. The various constituents of the gases from wells differ considerably in degree of perfection. In most wells, however, some of the constituents do not change their state within the range of temperature and pressures within the reservoir and immediately exterior to the orifice. These we call "permanent gases," recognizing at the same time, that they may be quite imperfect in behavior otherwise, within the specified range.

Vapors

105. A vapor is distinguished from a gas by the fact that it can change its state to liquid form at ordinary temperatures when subjected to compression. All vapors appear to behave as gases when at sufficiently high temperatures and probably all gases act in the manner of vapors at sufficiently low temperatures. There is no sharp line to be drawn between the two, though we shall arbitrarily agree that those gases which issue from wells and which are not permanent throughout the ranges of temperature and pressure, are to be classified as "vapors." Obviously, vapors are less perfect than gases and

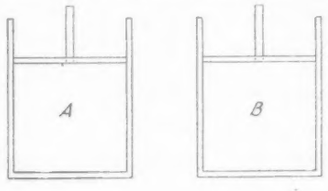


Figure 116

considerable error in computation may result if they are treated as though they possessed the mathematical properties of gases.

Homogenous Fluids

106. In speaking of oil and gas reservoirs we shall frequently have occasion to refer to a "homogenous fluid" in such a reservoir. Imagine a horizontal plane surface, the boundary of which is determined by projecting all points limiting the reservoir upon it. Now divide this surface into a multitude of small, equally-sized areas. Project these areas to and through the reservoir. Thus the reservoir is divided into a corresponding number of "columnar sections." If all of these sections contain the same proportion by weight of the various liquids, gases and vapors, no matter whether they occupy distinct parts of the sections or are intimately associated with one another, the reservoir is said to possess a homogenous fluid.

Viscosity

107. The property of a fluid which retards its rate of flow is called viscosity. Liquids, gases and vapors all possess viscosity, though the former has it to a

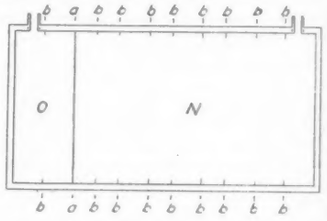


Figure 120

much higher degree than the others. There is a cohesion between molecules which constitute the fluid: it is an attractive force which resists separating or shifting of the molecules.

The number expressing viscosity may be obtained either by measuring the quantity of fluid passing through a given medium, in a given time, under a given pressure, or by measuring the frictional force with the proper apparatus. In both cases it is necessary to adopt some condition as the "standard" condition of comparison.

The viscosity of liquids generally decreases with a rise in temperature; that is, their "fluidity" is increased and they flow more readily. The reverse is generally true with gases.

Absorption

108. Porous substances possess the power of absorption when fluids are brought into contact with them. There is an "adhesion" between the molecules of the fluid and those of the solid matter composing the porous mass. These adhesive forces, combined with the forces of surface tension, produce the phenomenon of absorption.

A porous mass which has absorbed a gas or a liquid with gas in solution, at a given pressure, will tend to give up some of the fluids upon a reduction of the pressure. The expansion of the gas in the first case, and the passing of the gas to the free state, accompanied by subsequent expansion in the second case, will expel some of the fluid. When liquid alone has been absorbed, the reduction of the pressure will have no effect if such reduction is uniform throughout the space entirely surrounding the mass. Only in case there is an unbalanced force or combination of forces from at least one direction can expulsion of the liquid result.

Adsorption

109. Adsorption is the phenomenon of the concentration or condensation of fluids upon the surface of solid matter. A given solid substance adsorbs different

(Continued on Page 124)

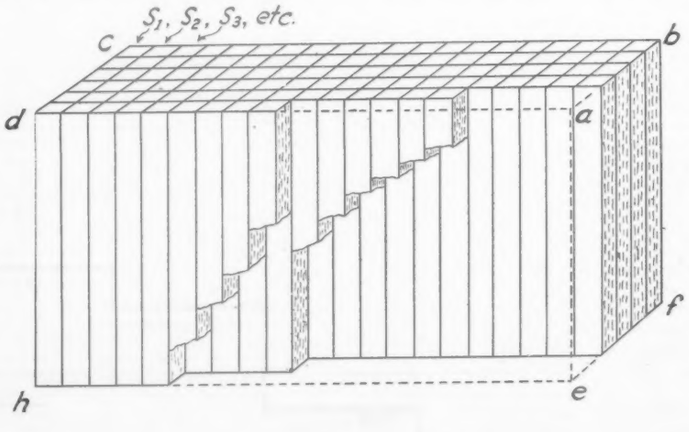


Figure 117

Figure numbers of cuts denote article introducing figures.

Has Grown to Gianthood in 18 Months

Now Doing Over Half the World's Swabbing

WHY? It is enlightening to review at this time the main reasons for the Guiberson Swab's remarkable success: They are:

1. That this is the only swab which utilizes the well's fluid pressure to obtain tight contact of packing material with casing walls.

2. Its ability to pass projections and through partially collapsed casing, due to flexibility of cup rims.

3. The ease with which it runs in, the fluid bypassing the cup rims, and no weight being needed to sink it.

4. Its practical non-leakability, due to its 3 efficient cups, in series.

5. The great durability of all its parts including its perfected composition cups.

These advantages deserve the attention of every non-user.

THE GUIBERSON CORPORATION
Box 1106 Dallas, Texas
OKLAHOMA BRANCH: 402 W. First St., Tulsa
CALIFORNIA BRANCH: 1737 E. 7th St., Los Angeles
318 First National Bank Bldg., Houston
506 Trust Bldg., Newark, O.

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GUIBERSON
BETTER BE SAFE THAN SORRY

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Dec. 30		Dec. 23		Dec. 16	
50-52 450 end point (Naphtha)	.07¼	.07½	.07¾		.07½	.07¾
56-58 450 end point	.07½	.07¾	.07¾	.08	.08	.08¼
58-60 437 end point (U. S. Motor)	.07¾	.08	.08	.08¼	.08¼	.08½
60-62 400 end point	.09½	.09¾	.09½	.09¾	.09¾	.10
64-66 375 end point	.10½	.10¾	.10¾	.11	.11	.11¼
68-70 360 end point	.11½	.11¾	.11¾	.12	.11¾	.12
OKLAHOMA (Group 3)—						
50-52 450 end point	.07	.07½	.07¼	.07½	.07½	.07¾
56-58 450 end point	.07½	.07¾	.07¾	.08	.08¼	.08½
58-60 437 end point (U. S. Motor)	.07¾	.08	.08		.08½	.08¾
60-62 400 end point	.09	.09¼	.09¼	.09½	.09½	.09¾
64-66 375 end point	.10¼	.10½	.10¾	.11	.11¼	.11½
68-70 350 end point	.11¼	.11½	.11½	.11¾	.12	.12¼
KANSAS—						
58-60 437 end point (U. S. Motor)	.08	.08¼	.08	.08½	.08½	.09
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.07	.07¼	.07	.07¼	.07¼	.07½
50-52 440 end point (Naphtha)	.07	.07½	.07¼	.07½	.07½	.07¾
56-58 450 end point	.07½	.07¾	.07½	.08	.08¼	.08¾
58-60 437 end point (U. S. Motor)	.08		.08		.08½	.08¾
60-62 400 end point	.08¾	.09	.09	.09½	.09½	.10
64-66 390 end point	.09¾	.10	.10¼	.10½	.11	.11¼
64-66 375 end point	.10	.10¼	.10¼	.10¾	.11¼	.11½
68-70 360 end point	.11¼	.11½	.11½	.11¾	.12	.12¼
NORTH LOUISIANA—						
56-58 450 end point	.08¼	.08¾	.08¾	.09	.09	.09¼
58-60 437 end point (U. S. Motor)	.08¾	.09	.09	.09¼	.09¼	.09½
60-62 400 end point	.10	.10¼	.10¼	.10½	.10½	.10¾
64-66 390 end point	.10¾	.11	.11¼	.11½	.11½	.11¾
64-66 375 end point	.10¾	.11	.11¼	.11½	.11¾	.12
ARKANSAS—						
58-60 450 end point	.08¼	.08½	.08½	.08¾	.09	.09¼
58-60 437 end point (U. S. Motor)	.08½	.08¾	.08¾	.09	.09	.09½
64-66 375 end point	.10¾	.11	.11	.11¼	.11½	.12
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.12	.12¼	.12	.12¼	.12¼	.12½
PENNSYLVANIA—						
52 Naphtha	.10¾		.10¾		.10¾	
54 Naphtha	.10⅞		.10⅞		.11	
56 Gasoline	.11		.11		.11¼	
58 Gasoline	.11¼		.11¼		.11½	
60 Gasoline	.12¼		.12¼		.12⅝	
62 Gasoline	.12⅝		.12⅝		.12½	
64 Gasoline	.14½		.14½		.14½	
66 Gasoline	.15½		.15½		.15¼	
68-70 Gasoline	.17		.17		.16½	
CALIFORNIA—						
54-56 437 end point (U. S. Motor) domestic	.09	.09½	.09	.09½	.09	.09½

*Colorado points.

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Dec. 30		Dec. 23		Dec. 16	
Grade Double A, 80-87.9 375 e.p., rec. 90%	.08¾	.09	.08¾	.09	.08¾	.09
Grade A, 72-79.9, 375 end point, rec. 90%	.08¾	.09	.08¾	.09	.08¾	.09
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¼	.08½	.08½	.08¾	.08½	.08¾
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼	.08½	.08½	.08¾	.08½	.08¾
Grade C, 80-90, 375 end point, rec. 78%	.07¾	.08	.08	.08¼	.08½	
OKLAHOMA (Group 3)—						
Grade Double A, 80-87.9 375 e.p., rec. 90%	.08¾		.08½	.08¾	.08¾	.09
Grade A, 72-79.9, 375 end point, rec. 90%	.08¾		.08¾	.09	.08¾	.09
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¼	.08½	.08¼	.08½	.08½	.08¾
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼	.08½	.08¼	.08½	.08½	.08¾
Grade C, 80-90, 375 end point, rec. 78%	.07¾	.08	.07¾	.08	.08¼	.08½
NORTH TEXAS—						
Grade Double A, 80-87.9 375 e.p., rec. 90%	.08½	.08¾	.08½		.08¾	
Grade A, 72-79.9, 375 end point, rec. 90%	.08½	.08¾	.08½		.08¾	
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¼		.08¼		.08½	.08½
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼		.08¼		.08½	.08½
Grade C, 80-90, 375 end point, rec. 78%	.07¾	.08	.07¾	.08	.08¼	
NORTH LOUISIANA—						
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼		.08¼	.08½	.08½	.08¾
Grade C, 76-82, 375 end point, rec. 85%	.07¾		.07¾	.08	.08	.08¼
CALIFORNIA—						
68-80 absorption, 360-390 end point	.11½	.12½	.11½	.12	.11½	.12
78-84 compression, 350 end point	.11½		.10½		.10½	

MOTOR NATURAL GASOLINE (BLEND)

CHICAGO DIST. (Based on Group 3)—	Dec. 30		Dec. 23		Dec. 16	
60-62 450 end point	.08		.08¼	.08½	.08½	.08¾
64-66 450 end point	.08		.08¼	.08½	.08½	.08¾
68-70 437 end point	.08	.08¼	.08½	.08¾	.08¾	.09
OKLAHOMA (Group 3)—						
60-62 450 end point	.07¾		.08¼	.08½	.08½	.08¾
64-66 437 end point	.07¾	.08	.08¼	.08½	.08½	.08¾
68-70 430-435 end point	.08	.08¼	.08½		.08¾	
NORTH TEXAS—						
58-62 440 end point	.07¾	.08	.08¼	.08½	.08½	.08¾
58-60 450 end point	.07¾	.08	.08¼	.08½	.08½	.08¾
PENNSYLVANIA—						
*60-62	.11¾		.12½		.12½	
*64-66	.12		.12½		.12½	
*66-68	.12		.12½		.12½	
*68-70	.12		.12½		.12½	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Dec. 30		Dec. 23		Dec. 16	
41-43 water white Kerosene	.04¾	.04⅝	.04¼	.04⅜	.04⅜	.04⅝
42-44 water white Kerosene	.04½	.04⅝	.04½	.04⅝	.04½	.04¾
KANSAS—						
41-43 water white Kerosene	.04⅜	.04⅝	.04⅜	.04⅝	.04⅜	.04⅞
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05		.05	.05¼	.05	.05¼
42-44 water white Kerosene	.05¼		.05¼	.05½	.05¼	.05½
ROCKY MOUNTAIN STATES—						
*40-42 water white Kerosene	.07½	.07¾	.07½	.07¾	.07½	.07¾
NORTH TEXAS—						
41-43 water white Kerosene	.04⅛	.04¼	.04¼	.04½	.04¼	.04½
41-43 prime white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
40-42 prime white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
42-44 water white Kerosene	.04½	.04⅝	.04½	.04⅝	.04½	.04⅝
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04¼	.04½	.04¼	.04½	.04⅜	.04⅝
42-44 water white Kerosene	.04½	.04⅝	.04½	.04⅝	.04½	.04⅝
40-41 prime white Kerosene	.04	.04⅛	.04	.04⅛		
ARKANSAS—						
41-43 water white Kerosene	.04¾	.05	.04¾	.05	.05	.05¼
42-44 water white Kerosene	.05	.05¼	.05	.05¼	.05¼	.05½
PENNSYLVANIA—						
43 Kerosene prime white	.07		.07		.07	
45 Kerosene water white	.07½		.07½		.07½	
46 Kerosene water white	.08¼		.08¼		.08¼	
47 Kerosene water white	.08¼		.08¼		.08¼	
34 Neutral	.09		.09		.09	
34 Sundebloomed Neutral	.07¾		.07¾		.07¾	
36 Miners' Neutral	.06½		.06½		.06½	
300 Mineral Seal	.07½		.07½		.07½	
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 43-45 445 end point	.06	.06½	.06	.06½	.06	.06½
Engine distillate, 42-44 480 end point	.05½	.05¾	.05½	.05¾	.05½	.05¾

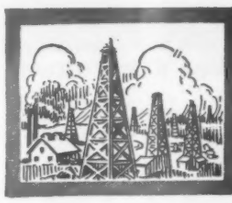
*Colorado points.

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Dec. 30		Dec. 23		Dec. 16	
24-26 Fuel Oil (sellers' cars, Group 3)	1.20	1.25	1.15	1.20	1.15	1.20
22-24 (El Dorado)	1.20	1.25	1.20	1.25	1.20	1.25
18-20 (Smackover)	1.12	1.17	1.12	1.15	1.10	1.15
32-36 Gas Oil	.03¾	.03½	.03¼	.03½	.03¼	.03½
36-38 Distillate	.03¾	.04	.03½	.03¾	.03¾	.03⅞
38-40 Straw distillate	.04	.04¼	.03¾	.04	.03¾	.04
KANSAS—						
24-26 Fuel Oil	1.30	1.35	1.25	1.30	1.25	1.30
32-36 Gas Oil	.03½	.03⅝	.03¼	.03½	.03¼	.03⅜
38-40 Distillate	.04⅛	.04¼	.03⅞	.04	.03¾	.04
OKLAHOMA (Group 3)—						
22-26 Fuel Oil (sellers' cars)	1.25		1.15	1.20	1.15	1.20
24-26 Fuel Oil (buyers' cars)	1.25		1.15	1.20	1.15	1.20
24-26 Fuel Oil (sellers' cars)	1.25		1.17½	1.20	1.17½	1.20
28-30 Fuel Oil (sellers' cars)	1.30	1.35	1.25	1.30	1.25	1.30
32-36 Gas Oil	.03⅜	.03½	.03¼	.03⅜	.03⅛	.03¼
36-38 Distillate	.03¾	.04				
38-40 Straw distillate	.04	.04⅛	.03¾	.04	.03⅝	.03¾
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.25		1.15		1.15	
26-30 Fuel Oil	1.30	1.35	1.20	1.25	1.20	1.25
32-36 Gas Oil	.03¼	.03½	.03¼		.03⅛	.03¼
36-38 Distillate	.03⅝	.03¾				
38-40 Straw distillate	.03⅞	.04⅛	.03⅝	.03¾	.03½	.03¾
NORTH LOUISIANA—						
18-20 Fuel Oil	1.15		1.10	1.15	1.10	1.15
24-26 Fuel Oil	1.20	1.25	1.15	1.20	1.15	
32-36 Gas Oil	.03¼	.03½	.03¼	.03½	.03¼	.03½
ARKANSAS—						
38-40 Distillate	.04	.04¼	.04		.03¾	.04
32-36 Gas Oil	.03½	.03⅝	.03⅜	.03½	.03¼	.03⅜
22-26 Refinery Fuel Oil	1.20		1.15	1.20	1.10	1.15
GULF COAST (South Texas)—						
Gas Oil	.04½	.05	.04½	.05	.04½	.05
Fuel Oil	1.65		1.60	1.70	1.60	1.70
PENNSYLVANIA—						
30-34 Fuel Oil	.06		.06		.06	
36-40 Fuel Oil	.06½		.06½		.06½	
CALIFORNIA—						
33-36 Distillate	.04	.04½	.04	.04½	.04	.04½
27-33 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
15-20 Fuel Oil (at tide water)	1.40		1.40		1.40	

NEUTRAL OILS AND WAX

OKLAHOMA (Group 3)—	Dec. 30		Dec. 23		Dec. 16	
70-80 vis., 2½ color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
100 vis., 2 color, 20-25 cold test	.04½	.05	.04½	.05	.04½	.05
100 vis., 3 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
150 vis., 3 color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
150 vis., 4 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
180 vis., 4 color, 23-28 cold test	.08	.08½	.08	.08½	.08	.08½
180 vis., 3 color, 23-28 cold test	.08½	.09	.08½	.09	.08½	.09
200 vis., 3 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
200 vis., 4 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
220 vis., 3 color, 25-30 cold test	.11½	.12	.11½	.12	.11½	.12
220 vis., 4 color, 25-30 cold test	.10¾	.11½	.10¾	.11½	.10¾	.11½
240 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 4 color, 25-30 cold test	.12¾	.13¼	.12¾	.13¼	.12¾	.13¼
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.07½	.08	.07½	.08	.07½	.08
180 vis., 6 color, 23-28 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
200 vis., 5 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
200 vis., 6 color, 23-28 cold test	.13	.13½	.13	.13½	.13	.13½
220 vis., 5 color, 25-30 cold test	.10	.10½	.10	.10½	.10	.10½
220 vis., 6 color, 25-30 cold test	.14¼	.14¾	.14¼	.14¾	.14¼	.14¾
240 vis., 5 color, 25-30 cold test	.12	.12½	.12	.12½	.12	.12½



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

240 vis., 6 color, 25-30 cold test	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
280 v s., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
180-200 vis., S. R. green, 40-45 cold test	.07½	.08	.07½	.08	.07½	.08
190-200 dark green, 40-45 cold test	.06½	.07	.06½	.07	.06½	.07
170-190 dark green, 40-45 cold test	.06	.06½	.06	.06½	.06	.06½
600, E filtered	.20	.21	.20	.21	.20	.21
190-200 vis. @ 210 "D" Bright Stock	.34		.34		.34	
200-210 vis., @ 210 "E" Bright Stock	.29		.29		.29	
150 vis. @ 210 "D" Bright Stock	.30		.30		.30	
150 vis. @ 210 "E" Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.05	.05⅛	.05	.05⅛	.05	.05⅛
PENNSYLVANIA—						
150, 3 color	.21½		.21½		.22	
180, 3 color	.24		.24		.24	
200, 3 color	.25½		.25½		.25½	
220, 3 color	.28		.28		.28	
600, steam refined	.22		.22		.22	
635, steam refined	.25½		.25½		.25	
650, steam refined	.28¾		.28¾		.27¼	
600, Pennsylvania flash	.34		.34		.32	
630, Pennsylvania flash	.39		.39		.38	
*550, E filtered	.23½		.23½		.23½	
*600, E filtered	.25		.25		.25	
600, E filtered	.23¾		.23¾		.23¾	
600, D filtered	.32		.32		.32	
550, E filtered	.22		.22		.22	
550, D filtered	.25		.25		.25	
Pennsylvania Bright Stock	.40½		.40½		.38½	
†122-124 White Crude Scale Wax	.05½		.05½		.05½	
*122-124 White Crude Scale Wax	.05½		.05½		.05½	

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06½	.07	.06½	.07	.06½	.07
No. 2 color, 100 vis., pale oil	.08½	.09½	.09½	.10½	.09½	.10½
No. 2 color, 150 vis., pale oil	.10	.11	.11½	.12½	.11½	.12½
No. 3 color, 200 vis., pale oil	.13	.14	.13½	.14½	.13½	.14½
No. 3 color, 300 vis., pale oil	.15	.16	.16	.17	.16	.17
No. 3½ color, 500 vis., pale oil	.17	.18	.18	.19	.18	.19
No. 3½ color, 750 vis., pale oil	.22½	.23½	.23½	.24½	.23½	.24½
No. 4½ color, 1200 vis., pale oil	.25½	.26½	.25½	.26½	.25½	.26½
No. 4½ color, 2000 vis., pale oil	.29	.30	.29	.30	.29	.30
No. 2 color, 150 vis., pale filtered	.20½		.20½		.20½	
No. 2 plus color, 200 vis., pale filtered	.22		.22		.22	
No. 2½ minus color, 300 vis., pale filtered	.25½		.25½		.25½	
No. 2½ color, 500 vis., pale filtered	.29½		.29½		.29½	
No. 2½ color, 750 vis., filtered	.39½		.39½		.39½	
No. 5 to 6 color, 200 vis., red oil	.11½	.12½	.12	.13	.12	.13
No. 5 to 6 color, 300 vis., red oil	.13½	.14½	.14½	.15½	.14½	.15½
No. 5 to 6 color, 500 vis., red oil	.15½	.16½	.16	.17	.16	.17
No. 5 to 6 color, 750 vis., red oil	.20½	.21½	.20½	.21½	.20½	.21½
CALIFORNIA—						
200 vis., 2½-3 color	.15	.16	.15	.16	.15	.16
300 vis., 2 -4 color	.15	.17	.15	.17	.15	.17
350 vis., 3½-4 color	.17½	.18½	.17½	.18½	.17½	.18½
400 vis., 4 -4½ color	.19	.20	.19	.20	.19	.20
Red Neutrals:						
200 vis., 4½-5 color	.13	.14	.13	.14	.13	.14
300 vis., 5 -6 color	.14	.16	.14	.16	.14	.16
400 vis., 5 -6 color	.16	.17	.16	.17	.16	.17
500 vis., 6 -6½ color	.17	.18	.17	.18	.17	.18
600 vis., 6½ plus color	.18	.19	.18	.19	.18	.19

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Dec. 30	Dec. 23	Dec. 16
U. S. Motor Gasoline, 58-60 437	.13¼	.13¾	.13
*Bunker Oil, 14-16 Be.	1.80	1.80	1.80
Diesel Oil, 28-30 Be.	2.10	2.10	2.10
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 32-36 Be.	.05½	.05¼	.05½
41-43 Kerosene prime white	.08½	.08½	.08½

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Dec. 30	Dec. 23	Dec. 16
58-60 Be. gravity, in cases	.26.65	.26.65	.26.65
U. S. Navy, in bulk	.12½	.12½	.12½
Naphtha:			
60° F., 59-61 Be. gravity, in bulk	.14¾	.14¾	.14¾
60° F., 63-66 Be. gravity, in bulk	.16	.16	.16
60° F., 66-68 Be. gravity, in bulk	.17½	.17½	.17½
Kerosene:			
Standard white, 40-42 Be. grav., in bulk	.06½	.06½	.06½
Standard white, 40-42 Be. grav., in barrels	.13½	.13½	.13½
Standard white, 40-42 Be. grav., in cases	.16.9	.16.9	.16.9
Water white, 42-44 Be. grav., in bulk	.07½	.07½	.07½
Water white, 42-44 Be. grav., in barrels	.14½	.14½	.14½
Water white, 42-44 Be. grav., in cases	.17.9	.17.9	.17.9
†Lubricating Oils:			
Cylinder Stock, extra light filtered, 600, in barrels	.46½	.46½	.46½
Cylinder Stock, light filtered, 600, barrels	.40½	.40½	.40½
No. 1 white neutral, .878 spec. grav.	.43	.43	.43
No. 1 Summer Black, .895 spec. grav.	.18	.18	.18
No. 5 Bright Stock, .897 spec. grav.	.50½	.50½	.50½
Special "A" red oil, .897 spec. grav., 170 vis.	.21	.21	.21
No. 2 red oil, .903 spec. grav., 212 vis.	.22	.22	.22
No. 1 red oil, .905 spec. grav., 265 vis.	.23	.23	.23
Polar red oil, .906 spec. grav., 295 vis.	.25	.25	.25
Pale oil, "25", .899 spec. grav.	.20½	.20½	.20½
Pale oil, "28", .892 spec. grav.	.16	.16	.16
Paraffin Wax:			
120-122 a.m.p., per lb.	.06	.06	.06
125-127 a.m.p., per lb.	.06⅛	.06⅛	.06⅛
130-132 a.m.p., per lb.	.06½	.06½	.06½
135-137 a.m.p., per lb.	.07½	.07½	.07½

†All lube prices in barrels.

LOS ANGELES EXPORT MARKET

	Dec. 30		Dec. 23		Dec. 16	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor gasoline, 54-56, 437 end point	.08½	.09	.08½	.09	.08½	.09

CRUDE OIL PRICES

Crude Oil Prices

December 27. — The Joseph Seep Purchasing Agency advanced all grades of Pennsylvania crude 25 cents.

December 19.—Humble Oil & Refining Co. adopted Prairie Oil & Gas Co. schedule for Ranger, Tex., field. Same company posted a price of $1.25 for Wortham, Tex., crude.

Arkansas and North Louisiana

Caddo, 38° and above	$1.35
35° to 37.9°	1.25
32° to 34.9°	1.15
Below 32°	1.00
Homer, 35° and above	1.10
33° to 34.9°	1.00
31° to 32.9°	.90
Below 31°	.75
Haynesville, 33° and above	1.00
Below 33°	.90
El Dorado, 33° and above	1.00
Below 33°	.90
Bull Bayou, 38° and above	1.15
35° to 37.9°	1.00
32° to 34.9°	.85
Cotton Valley	.95
De Soto	1.20
Crichton	1.00
Bellevue	1.35
Smackover, 25° and above	.95
Below 25°	.85
*Stephens, Ark.:	
26° and above	.90
Below 26°	.70

*Posted by Atlantic Oil Producing Co.

Wyoming and Montana

Rock Creek (Wyo.)	$ .95
Salt Creek	.85
Big Muddy	.75
Mule Creek	.60
Grass Creek (light)	1.20
Elk Basin	1.20
Lance Creek	1.15
Osage	1.15
Cat Creek (Mont.)	1.20
Sunburst (Mont.)	.90
Lost Soldier	.78
Greybull and Torchlight	1.15
Hamilton Dome	.80

Lander based on contracts covering entire production of fields.

Oklahoma, Kansas, North and Central Texas

Prairie Oil & Gas Co. and other major purchasing companies, except as noted:

Below 30°	$ .75
30° to 32.9°	.90
33° to 35.9°	1.10
36° and above	.125
Magnolia Petroleum Co.:	
*33° and above	1.25
Corsicana light	1.25
Corsicana heavy	.90
Mexia	1.25
Powell	1.25
Thrall	1.00

*Below 33° gravity, same as Prairie.

Prairie Oil & Gas Co. buying crude in new Wortham Pool at gravity basis.

Humble Oil & Refining Co.

Mexia	$1.25
Powell	1.25
Currie	1.25
Richland	1.25
Wortham	1.25

Wichita-Archer Counties and Moran, same as Prairie.

Gulf Coast

†Grade "A"	$1.50
†Grade "B"	1.25
Luling	.90
Laredo (Magnolia Petroleum Co.)	.75
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)	1.53
*High Island	.85

*Posted by Sun Co.

†Following are the specifications for Gulf Coast Crudes as posted by Humble Oil & Refining Co.:

Grade "A"—Viscosity not less than 100 seconds at 100° F. Saybolt. Sulphur not over .4 per cent. Baume gravity not over 25 at 60° F.

Cold test of distillates having viscosity of 1,000 seconds at 100° F., A. S. T. M. method.

Grade "B"—Embraces all coastal crude which does not meet the test for "A" Grade crude.

***Somerset**

26° and above	.95
Below 26°	.85

*Posted by Grayburg Oil Co.

California

14° to 19.9°	$1.00
20° to 20.9°	1.01
21° to 21.9°	1.02
22° to 22.9°	1.03
23° to 23.9°	1.05
24° to 24.9°	1.07
25° to 25.9°	1.10
26° to 26.9°	1.13
27° to 27.9°	1.16
28° to 28.9°	1.19
29° to 29.9°	1.22
30° to 30.9°	1.25
31° to 31.9°	1.28
32° to 32.9°	1.31
33° to 33.9°	1.34
34° to 34.9°	1.37
35° to 35.9°	1.40
36° to 36.9°	1.46
37° to 37.9°	1.52
38° to 38.9°	1.58
39° to 39.9°	1.64
40° to 40.9°	1.70
41° to 41.9°	1.76
42° and above	1.82

Eastern States

Penna Grade Oil in New York Transit Lines	$3.10
Bradford District Oil in National Transit Lines	3.10
Penna Grade Oil in National Transit Lines	3.00
Penna Grade Oil in Southwest Pa. Pipe Line Lines	3.00
Penna Grade Oil in Eureka Pipe Line Lines	3.00
Penna Grade Oil in Buckeye Pipe Line Lines	3.00
Cabell Grade Oil in Eureka Pipe Line Lines	1.45
Corning Grade Oil in Buckeye Pipe Line Lines	1.50
Somerset Medium Oil in Cumberland Pipe Line Lines	1.55
Somerset Light Oil in Cumberland Pipe Line Lines	1.70
Ragland Grade Oil in Cumberland Pipe Line Lines	.90
Lima	1.58
Wooster	1.40
Illinois	1.37
Indiana	1.38
Princeton	1.37
Plymouth	.75
Waterloo	.75
†Oil Springs, Canada	2.30
†Petrolia, Canada	2.23
*Western Kentucky, 36° and above	1.30
*Western Kentucky, 33° to 35.9°	1.20
*Western Kentucky, 32.9° and below	1.10
Cumberland, Barren and Monroe Counties (Kentucky), (Paragon Development Co.)	1.70

†Plus Government bounty of 26½c.

*Prices for Warren, Allen, Hancock, and Ohio Counties by Indiana Refining Co. Prices for Warren and Simpson Counties by Paragon Development Co., same as Indian Refining Co.

Mexican Crude

*Tuxpam (f.o.b. Mexican ports)	$1.15
†Panuco (f.o.b. Mexican ports)	.95
Tuxpam (New York)	1.72
Panuco (New York)	1.38

*Plus 32.33c. †Plus 17.64c tax. Prices based on contracts.

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MEMBER AUDIT BUREAU OF CIRCULATION

MOMENTOUS POSSIBILITIES

The creation of a Federal Oil Conservation Board by President Coolidge has momentous possibilities for the petroleum industry, some pleasant, others decidedly unpleasant, depending on whether the outcome is constructive legislation or destructive regulation.

There are two reassuring features at the outset: The high quality of the appointees, four members of the Cabinet, and the President's direct invitation for the full cooperation of representatives of the oil industry in the investigation.

This last is a return to the war-time practice in which the National Petroleum War Service Committee rendered such signal service to the country. If the present inquiry is conducted on the same plane of cooperation and equal counsel the result should be to the advantage of the nation and of the industry.

On the other hand, if it should be permitted to be misused or misled into being a foundation for empirical suggestions or merely theoretical panaceas, irreparable injury may be done to the industry and, through its impairment, to the operations of the country dependent upon an uninterrupted supply of petroleum products.

However well-intentioned the members of the Oil Conservation Board may be, the scope of the industry is so broad that the board will doubtless be bombarded with all sorts of supposed remedies and the danger will be that these may be seized by politicians to confuse popular opinion and form the basis for restrictive and harmful legislation.

The Board itself, it must be remembered, is merely consultative and advisory. Whatever its recommendations, if any, may be, they will have to be submitted to Congress. Unless they are plainly and positively constructive there will be grave danger of distortion and diversion in the subsequent congressional debates and decisions.

The Conservation Board having been appointed and the full cooperation of the industry requested by the President the opportunity is offered the leaders of the oil industry to make their case so clear and comprehensive that this danger of misunderstanding and misrepresentation will be reduced to a minimum.

The charge of wastefulness has been made against the industry and will be repeated in innumerable variations during the progress of the hearings. The opportunity should not be missed to remind the country and Congress more particularly that the Government itself, through the course of Congress, has been a chief offender in the waste of our petroleum resources.

President Coolidge alluded to this phase in his letter appointing the Conservation Board when he said:

"The Government itself is at present one of the largest of the lessors of oil lands, and the public domain still includes large undeveloped reserves of oil, so that the administration of oil resources is a practical question with the Department of the Interior."

The Oil and Gas Journal has before now protested on behalf of the industry against the Governmental policy which has forced sales of Osage leases in times of deep depression in the oil business, throwing open to development oil resources that in the interests of the country, the Osages and the oil industry should have been preserved for more propitious times.

The reply of the Department of the Interior was that Congress had stipulated sales should be held within certain periods, regardless of the effect of adding new production to an already overloaded market.

Nothing the industry has done towards overproduction has been so deliberate as this wasteful course of the Government itself.

Any recommendation for conservation of our oil resources should in all reason start with the Government itself. The Government is not hampered or compelled by the competitive conditions and circumstances that force commercial producers to drill in self protection. It might well set an example in practical conservation.

The industry is already on record that, as Judge Beaty has said, too much oil is being taken from the ground. But, as he added, the big question is how can it be limited? No feasible plan has yet been conceived by the men of the industry, who are naturally most directly interested.

One chief obstacle to effective cooperation on the problem has, of course, been the attitude of the Government itself. Anything approaching cooperation among the units of the industry has been prevented by the threat of Government prosecution.

The "overproduction which encourages the cheapness of oil" that the President deplores as "leading to wastefulness and disregard of essential values" has not prevented the Federal Department of Justice from instituting prosecutions against oil companies on the theory that gasoline is not cheap enough.

If the Oil Conservation Board does no more it may be able to promote a more consistent Governmental attitude towards the oil industry.

As to the creation of the board itself it was perhaps inevitable in view of the political prominence given to oil. Probably the industry should be thankful that Governmental action has taken this form rather than letting the situation drift into the hands of irresponsible politicians.

With the full cooperation of representatives of the industry sitting in conference with the Secretaries of War, the Navy, the Interior and the Department of Commerce, not as targets for inquisitorial political prosecutors, but as conferees in the consideration of a common problem some definite and practical policy may be arrived at that will command the approval of the country and compel the sanction of Congress.

The experience of the National Petroleum War Service Board showed what could be accomplished when the Government and the industry worked together in the solution of their problems. That success was based upon mutual confidence and consideration. Similar conditions and like cooperation ought to be equally successful in this consultation on conservation, particularly since the industry, no less than the Government, is anxious to preserve the resources upon which its prosperity depends.

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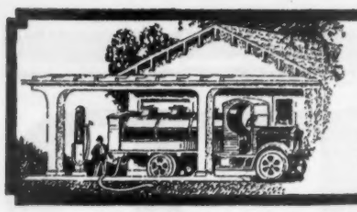


TANK WAGON MARKETS

Tank wagon quotatins for gasoline and kerosene in United States as furnished by the larger marketing concerns, Dec. 30

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Chicago District—				
†100 gals. or more	13.0	...	16.0	11.0

Tank wagon prices on April 10, 1922; g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 3c; Oct. 21, g. down 1c; Feb. 8, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 29, g. up 2c; Jan. 13, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c.

Decatur, Ill.	13.2	...	15.2	11.5
East St. Louis	12.1	...	14.35	10.6
Joliet	13.4	...	16.4	11.7
Peoria	13.0	...	15.0	11.5
Quincy	13.2	...	15.2	11.3
Davenport, Ia.	13.5	...	15.5	11.9
Des Moines	13.5	...	15.5	11.9
Keokuk	13.5	...	15.5	11.9
Sioux City	13.0	...	15.0	11.5
Duluth, Minn.	14.5	...	16.5	12.6
Minneapolis	14.2	...	16.2	12.6
La Crosse, Wis.	14.2	...	16.2	12.4
Milwaukee	13.1	...	15.1	11.3
Madison	13.3	...	15.3	11.5
Detroit, Mich.	13.8	...	15.8	12.2
Grand Rapids	13.7	...	15.7	12.1
Saginaw	13.9	...	15.9	12.3
Evansville, Ind.	13.2	2.0	17.0	11.5
Fort Wayne	15.4	2.0	17.4	11.9
Indianapolis	15.2	2.0	17.2	11.7
South Bend	15.4	2.0	17.4	11.9
Fargo, N. D.	15.9	1.0	17.9	14.6
Huron, S. D.	17.0	2.0	19.0	13.1
Sioux Falls	15.0	2.0	17.0	12.6
*Kansas City, Mo.	13.9	1.0	15.9	10.3
*Springfield	13.8	1.0	15.8	11.2
*St. Louis	12.6	0.5	14.9	11.0
*St. Joseph	13.0	0.5	15.0	10.9
Wichita, Kans.	12.8	...	14.8	9.8
Bartlesville, Okla.	14.4	...	16.4	9.9

*City tax.
†Tank wagon price on less than 100 gallons, 14c.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Newark, N. J.	13.5	...	....	13.0
Atlantic City	13.5	...	....	13.0
Annapolis, Md.	15.0	2.0	17.0	12.0
Baltimore	15.0	2.0	17.0	11.0
Cumberland	15.0	2.0	17.0	12.5
Washington, D. C.	16.0	2.0	18.0	12.5
Norfolk, Va.	17.0	3.0	19.0	13.5
Petersburg	17.0	3.0	19.0	13.5
Danville	17.0	3.0	19.0	13.0
Richmond	17.0	3.0	19.0	13.5
Roanoke	17.0	3.0	19.0	13.5
Keyser, W. Va.	15.0	2.0	....	13.5
Charleston	16.0	2.0	....	12.5
Parkersburg	16.0	2.0	....	13.5
Wheeling	16.0	2.0	....	13.5
Charlotte, N. C.	15.0	3.0	....	13.5
Hickory	15.0	3.0	....	13.5
Mt. Airy	15.0	3.0	....	13.5
Salisbury	15.0	3.0	....	13.5
Charleston, S. C.	15.5	3.0	....	14.0
Columbia	15.5	3.0	....	14.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Atlanta, Ga.	17.0	3.0	20.0	11.0
Augusta	17.0	3.0	20.0	13.5
Macon	17.0	3.0	20.0	14.5
Savannah	14.0	3.0	17.0	13.0
Birmingham, Ala.	15.0	2.0	18.0	14.5
Mobile	14.0	2.0	17.0	12.5
*Montgomery	16.0	3.0	19.0	16.5
Clarksdale, Miss	15.0	3.0	18.0	12.0
Jackson	15.0	3.0	18.0	10.0
Natchez	14.5	3.0	17.5	11.5
Vicksburg	14.5	3.0	17.5	11.5
Jacksonville, Fla	15.0	3.0	18.0	12.0
Miami	17.0	3.0	20.0	14.5
Pensacola	15.0	3.0	18.0	13.5
Tampa	15.0	3.0	18.0	13.0
Lexington, Ky.	16.0	3.0	19.0	14.0
Covington	15.0	3.0	18.0	14.0
Louisville	15.0	3.0	17.0	12.0

*In addition to State tax of 3 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Dallas, Tex.	10.0	1.0	13.0	10.0
Fort Worth	10.0	1.0	14.0	10.0
Houston	10.0	1.0	14.0	10.0
San Antonio	10.0	1.0	12.0	10.0
El Paso	10.0	1.0	14.0	11.0
Muskogee, Okla.	14.0	2.5	19.0	11.0
Oklahoma City.	14.0	2.5	17.0	11.0
Tulsa	12.0	2.5	15.0	10.0
Ft. Smith, Ark.	15.0	4.0	18.0	12.0
Little Rock	17.0	4.0	19.0	11.0
*Texarkana	16.0	4.0	19.0	10.0

*Does not include 1c additional tax.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
San Francisco	15.0	2.0	18.0	15.5
Los Angeles	13.5	2.0	16.5	15.5
Fresno	15.5	2.0	18.5	17.5
Reno, Nev.	18.5	2.0	21.5	19.0
Portland, Ore.	16.0	3.0	19.0	16.5
Seattle, Wash.	15.0	2.0	18.0	16.5
Tacoma	15.0	2.0	18.0	16.5
Spokane	19.0	2.0	22.0	20.5
Phoenix, Ariz.	21.0	3.0	24.0	21.5

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Basin, Wyo.	17.0	1.0	....	14.0
Casper	15.0	1.0	17.0	12.0
Cheyenne	16.5	1.0	18.5	13.5
Cody	18.0	1.0	....	15.0
Lander	17.0	1.0	....	14.0
Albuquerque, N. M.	20.5	1.0	22.5	15.5
Salt Lake, Utah	20.0	2.0	22.0	17.0
Ogden	20.0	2.5	22.0	17.0
Denver, Colo.	14.0	2.0	16.0	13.5
Glenwood Spgs.	20.0	2.0	....	17.5
Pueblo	16.0	2.0	18.0	13.5
Billings, Mont.	18.5	2.0	20.5	14.5
Butte	20.0	2.0	22.0	15.0
Great Falls	20.0	2.0	22.0	16.0
Helena	20.0	2.0	22.0	16.0
Miles City	19.5	2.0	21.5	16.5
Missoula	21.0	2.0	23.0	16.0
Boise, Idaho	21.5	2.0	23.5	19.0
Idaho Falls	21.0	2.0	23.0	18.5

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
*Pittsburgh, Pa.	15.0	...	20.0	14.0
*Philadelphia	15.0	...	20.0	14.0
*Scranton	15.0	...	20.0	14.0
*Allentown	15.0	...	20.0	14.0
*Altoona	15.0	...	20.0	14.0
*Erie	15.0	...	20.0	14.0
Dover, Del.	17.0	2.0	20.0	14.0
Wilmington	17.0	3.0	20.0	14.0
Springf'ld, Mass.	15.0	...	18.0	13.0
Worcester, Mass	15.0	...	18.0	13.0
Boston	15.0	...	18.0	11.0
Providence, R. I.	15.0	...	18.0	13.0
Hartford, Conn.	16.0	1.0	19.0	12.0
New Haven, Conn.	16.0	1.0	19.0	13.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Albany, N. Y.	15.0	...	....	13.0
*New York	15.0	...	....	13.0
Buffalo	13.0	...	....	12.0
Rochester	15.0	...	....	13.0
Syracuse	15.0	...	....	12.0
Boston, Mass.	15.0	...	....	13.0
Providence, R. I.	15.0	...	....	13.0
Augusta, Me.	16.0	1.0	....	13.0
Manchester, N. H.	17.0	2.0	....	13.0
Burlington, Vt.	16.0	1.0	....	13.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not generally quote service station prices in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
Omaha	...	...	13.0	11.5
Crawford	14.0	...	....	12.25
McCook	14.75	...	16.75	13.0
Norfolk	13.75	...	16.75	12.0
North Platte	14.75	...	16.75	12.75
Scotts Bluff	14.25	...	16.25	12.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
New Orleans, La.	13.5	2.0	15.5	9.0
Alexandria	14.5	2.0	16.5	13.0
Baton Rouge	13.0	2.0	15.0	11.5
Lake Charles	14.5	2.0	16.5	13.0
Shreveport	14.5	2.0	16.5	13.0
Memphis, Tenn.	14.0	2.0	16.0	14.0
Chattanooga	15.0	2.0	17.0	14.5
Knoxville	16.5	2.0	18.5	16.0
Nashville	15.5	2.0	17.5	13.5
Bristol	17.0	2.0	19.0	13.5
Little Rock, Ark.	17.0	4.0	19.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Incids tax	Service of station	Tank wagon
All Ohio points	15.0	...	17.0	14.0

FUEL OILS AND DISTILLATES STRONG

(Continued from Page 22)

gravity on Monday and Tuesday. That price was being paid by the Frisco railroad for material located on its lines. Some intrastate buyers were forced to pay up to $1.30 for the 24-26. More material will be available after the first of the year but it is also probable the demand will continue strong. Gas oil advanced to a low of 3¾ cents with a price range up to ⅝-cent for the 32-36 grade.

Lubricating Oils and Wax

The few manufacturers of cylinder stocks report a fair to strong demand. Most of the sales are to exporters. Neutrals and bright stocks are dull with no changes in price. Wax sales were made during the week at 5 cents.

MARLAND REAGAN OIL THROUGH HUMBLE LINES

George R. Marland, son of Pres. E. W. Marland of the Marland Oil Co., heads as president a recently organized subsidiary in Texas, known as the Reagan County Crude Purchasing Co. for the purpose of purchasing production, principally the Texon Oil & Land and Big Lake Oil companies. There are five directors of the new company's board, three being Marland men—George R. Marland, Howard B. Drake and Charles E. Stephenson, all of Ponca City; the others are Levi Smith, president of the Big Lake Oil Co., and Frank T. Pickrell, vice president and general manager of the Texon Oil & Land Co., also vice president of the Big Lake.

The Marland Oil Co., it develops, has just closed a deal with the Humble Oil & Refining Co. of Texas, whereby the latter takes over the contract of Marland to build a pipe line from the Reagan County Field. The Humble will build the pipe line and take the oil from the Reagan County Crude Purchasing Co., and the Humble is to build eight 80,000-bbl. steel tanks. One is now being constructed and the building company must finish an additional tank each 21 days. The Texon Oil & Land Co. is also building three 55,000-bbl. steel tanks.

The Big Lake and Texon companies control the Reagan County production, which at present amounts to between 10,000 and 11,000 bbls. daily. Some time ago the Marland Oil Co. entered into an agreement with the Big Lake and Texon companies to take the crude from the Reagan County Field up to a certain maximum. This amounted to 10,000 bbls. daily for the first year, 20,000 bbls. daily for the second year, and to continue to take the production thereafter. Marland also agreed to form a purchasing company of which Marland was to have control, and to build a pipe line or cause one to be built to handle the crude the purchasing company might secure.

Announcement of the deal with the Humble followed a recent visit to San Angelo and the Reagan County Field by prominent oil officials, including Pres. Walter C. Teagle of the Standard of New Jersey; Pres. A. F. Corwin of the Carter; Pres. W. S. Farish of the Humble; Pres. E. W. Marland of the Marland, and Pres. Levi Smith of the Big Lake Co.

R. V. Hanrahan, general manager of the Humble company has announced that the new pipe line will be an 8-inch, for which the steel has already been purchased at Pittsburgh.

George R. Marland, president of the Reagan County Crude Purchasing concern, and Howard B. Drake will have headquarters in San Angelo, with Mr. Stephenson, the third Marland director, remaining in the New York office of the Marland company.

NORTH TEXAS MARKET SOMEWHAT IRREGULAR

FORT WORTH, Tex., Dec. 29.—Developments in the North Texas refined market during the past week were somewhat irregular. The higher gravity gasolines continued to slump but prices on the principal motor grade—58-60 U. S. Motor—are the same as last week. Refiners in this section probably manufacture a larger percentage of the higher gravity gasolines than any other area in the Mid-Continent Field and the demand since the first few days of December has not been sufficient to absorb this large output. The 64-66, 375 has slumped to a low of 10 cents with 60-62, 400 available as low as 8¾ cents. Many refiners sold their U. S. Motor 58-60 output early in the month when prices were higher and they will not be anxious to sell additional supplies until after the first of the new year. Eight cents is the prevailing price for this grade.

There was some export buying of both 64-66 and U. S. Motor 58-60 during the week. The Atlantic Refining Co. was the largest buyer with purchases which it is believed will total around 300 cars. The Carson Petroleum Co. also purchased smaller amounts.

Fuel oil's have advanced rapidly during the past few days and gas oils and distillates are higher than a week ago. Fuel oils have been strong for several weeks and when additional buyers got into the market the latter part of last week they soon bought an advance in price from $1.15 to $1.25 for the grades ranging from 20 to 26 degrees in gravity. One refiner in the Wichita Falls area is reported to have purchased several hundred cars for delivery between now and the end of January. The purchases of this company and other smaller buyers have taken all the material available this month and will limit the amount available throughout the month of January.

Largely as a reflection of this advance in fuel oils refiners are asking ⅛ to ¼ cent more for their gas oils. The cold weather continues to aid the demand for distillates and all grades have advanced the same as gas oil. Kerosenes are still dull but refiners are expecting that the strong distillate demand will change this situation. The 41-43 grade was available as low as 4⅛ cent and the 42-44 water white grade sold as low as 4⅜ to 4½ cents.

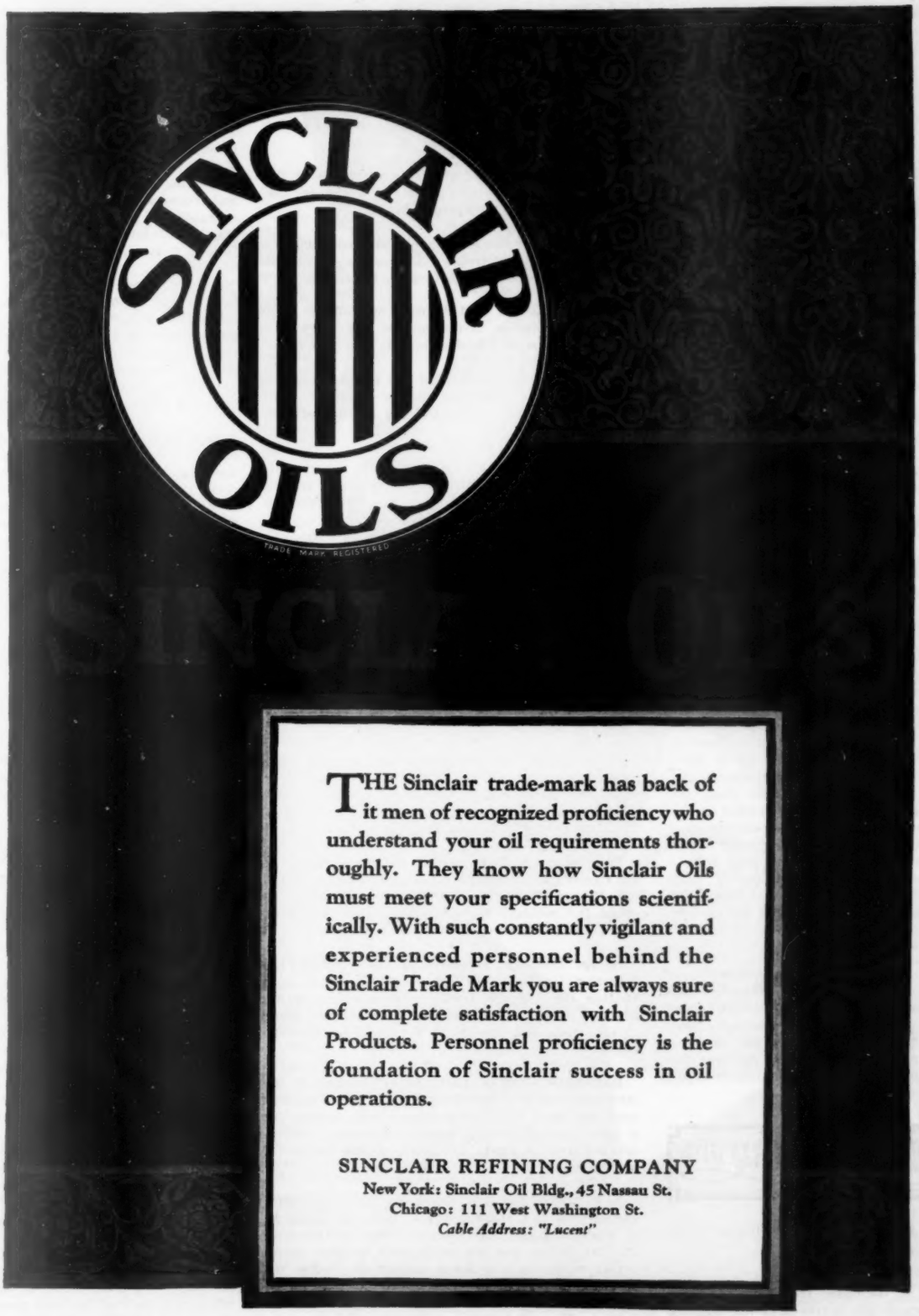
Natural gasoline prices are practically the same as last week. Grade C after slumping to a low 7½ cents for a few days last week has recovered slightly due to more buying. Because of the cold weather which has brought about a falling off in the production of the A grades manufacturers are securing as high as 8¾ cents for both Grade A and Double A. Grade B is unchanged.

HIGH GRAVITY CRUDE UP

A price of $1.50 a barrel on Tonkawa and Billings crude, 42 gravity and above, was posted on Monday by the Champlin Refining Co. and the Bolene Refining Co., both of Enid, Okla. The Champlin price becomes effective January 1, while the latter company's new price was effective December 29. This represents a 10-cent advance in the posted price for both concerns.

NOW RESEARCH DIRECTOR

G. G. Oberfell, inventor of the charcoal process for greater recovery of gasoline from casinghead gas, who perfected his process in the building of the Landreth gasoline plant at Breckenridge, Tex., has resigned from the Hope Engineering & Supply Co.'s staff to become director of research for the Phillips Petroleum Co. During the World War, Mr. Oberfell was in charge of the absorbent section of chemical warfare work, seeking a means of making gas masks and other war equipment immune from penetrative and poisonous gases.



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MEN KNOWN IN OILDOM

W. L. Steed

W. L. Steed, general superintendent of the Mexican Petroleum Company in Mexico, whose holdings comprise the haciendas known as Ebano, the first commercial petroleum pool in the southern republic, was born in Warfield, Brunswick County, Virginia, April 22, 1878. The son of a Virginia planter, young Steed knew from infancy the music of the fox hound and the delectable scent of fragrant mint in the bed and served with the historic leg of lamb. Going west as a young man he saw the country and gained a wide experience in the petroleum field, especially in the manufacture of asphalt.

Shortly after the Ebano Field was proven by the Doheny interests, he came to Mexico to construct and operate the asphalt refinery at that place. He came for a two-year stay, but has been at Ebano ever since, having been promoted from a refinery superintendent to general manager of the place. He remained at his post in the memorable battle of Ebano fought for six weeks in 1916, possibly the greatest artillery duel in the history of Mexican armies. Ebano camp was under almost continuous artillery fire throughout that time, but Steed stuck it out, caulking tanks riddled by artillery fire and putting out one bad concrete sump fire the while. He is a keen hunter, a lover of animals as his menagerie with pets ranging from a bear to the humble Mexican coon will testify; travels an average of 150 kilometers the day from dawn to dark overseeing the properties under his management; and, being of a retiring disposition, has thus far remained a bachelor.

(Note—Accompanying the above photograph and biographical sketch from The Oil and Gas Journal's Mexican correspondent was the following note: "W. L. Steed is one of the ablest managers in Mexico but the only picture he has ever had made of himself was for passport purposes. I snitched this one off an old passport with the connivance of his office manager."—George Blardone.)

PERSONAL PARAGRAPHS

Joseph Burton has returned to Petrolia, Ontario, from the oil fields of Tampico, Mexico.

* * *

W. R. Thawley, of the Gypsy Oil Company, Tulsa, is spending the Christmas holidays at his home in Washington, D. C.

* * *

Thomas B. Slick, oil producer in the Mid-Continent fields, is spending the holidays with his family in San Antonio, Tex.

Mathews Nelson, of the Coleman-Nelson Company, of Tulsa, is in Houston, Tex., for the holidays.

* * *

E. E. Kirkpatrick, in charge of the office of T. B. Slick in Tulsa, spent Christmas at his old home in Brownwood, Tex.

* * *

W. L. Connelly, manager of the Mammoth Oil Company, Casper, Wyo., was called to Toledo, Ohio, by the death of his mother.

* * *

Donald Clark, who is drilling several wells in the Balcones Fault zone in Texas, is spending the holidays at his home in Huntington, W. Va.

* * *

Dr. Raymond Moore, State geologist of Kansas, was the speaker at a recent noonday meeting of the Kansas Geological Society at Wichita.

* * *

M. L. Terry, assistant field superintendent of the Josey Oil Company, of Tulsa, is spending the Christmas holidays in Springfield, Mo.

* * *

Henry McBrier has been appointed superintendent of the Magnolia Petroleum Company's new field office at Morrison, Pawnee County, Oklahoma.

* * *

John G. Pew of Philadelphia, one of the best known oil operators in the eastern and Mid-Continent fields, visited Pittsburgh, Pa., last week.

* * *

L. O. St. Clair, president of the Independent Oil Producers Agency, left Los Angeles for Bakersfield, Calif., to attend a special meeting of the corporation recently.

* * *

Henry Roess, of the right of way department, Pittsburgh, Pa., has retired after 30 years' service and goes on the annuity list. He will reside in Oil City in the future.

* * *

Fred B. Letcher has opened an office at 317 Kennedy Building, Tulsa. Mr. Letcher has been operating in the southern California fields, but returned convinced that Oklahoma presented more interesting opportunities.

* * *

John Bott is rapidly recovering from a paralytic stroke at his home in Okmulgee, Okla. Mr. Bott is trustee for the Wittmer interests with valuable properties in the Papoose Field in Okfuskee County, Oklahoma.

* * *

B. H. Anglin, who has been acting as sales manager for the Indian Refining Company of Lawrenceville, Ill., has been given the title of general sales manager. He has been connected with the New York office of the Indian Refining Company.

* * *

Superintendent Bart Myers and Mrs. Myers of the Carter Oil Company's camp at Salt Creek, Wyo., left Casper, Wyo., for the Christmas vacation, to spend the holidays in Oklahoma. They will visit friends and relatives in Tulsa and Ardmore.

* * *

George Peabody, president of the Peabody Lubricating Company of New York City, has been visiting the Chicago trade. His company manufactures "Hormoil," a blend of Pennsylvania lubricating stock and castor oil for high speed lubrication.

* * *

Richard S. Gray of Tulsa, superintendent of the land department of the Prairie Oil & Gas Company, who had been ill of hiccoughs, which ailment for a time was of a very serious character, has recovered and is again attending to the duties of his office.

* * *

A. E. Moore, for eight years treasurer and credit manager of the Sterling Oil & Refining Company, of Wichita, Kans., has resigned effective December 31. Mr. Moore and his family will spend a month or six weeks in the South immediately after the first of the year.

* * *

Clyde Ellwood, who has been representing the Axelson Machine Company at Casper, Wyo., has been moved to Pittsburgh, Pa., where new and larger offices have been recently opened with the Frick & Lindsay Company. J. P. McFadden is Mr. Ellwood's successor at Casper.

Several eastern representatives of the Axelson Machine Company planned to attend the firm's annual convention in Los Angeles, among whom were J. P. McFadden, of Casper, Wyo.; Clyde Ellwood of Pittsburgh, Pa.; H. W. Platenberg and J. Walker, of Tulsa; and R. M. Pease, of St. Louis.

* * *

Robert Mullen, an engineer formerly in the employ of the Campbell-Hunter Company, of London, England, has been appointed vice president and general manager of the Derby Dome-Wyoming Oil Company, of Casper, Wyo. His predecessor, Archibald Campbell, has been elected to a county office in Fremont County, but will retain his office as a director of the company.

* * *

Samuel J. Caudill, petroleum engineer, has arrived from a three weeks' inspection trip in California where he has been appraising oil and gas properties in the Long Beach, Santa Fe Springs and Torrance oil fields. Mr. Caudill has recently changed his California office address from 916 Bartlett Building to 433 Security Building with Robert F. Purvis in charge.

* * *

John L. Gray, vice president and general manager of the Shaffer Oil & Refining Company, with headquarters in Tulsa, has been elected president and director of the Home Oil Company to succeed P. C. Crenshaw, resigned. The entire stock interest of Mr. Crenshaw in the Home Oil Company which has 102 bulk and 20 filling stations, was recently acquired by the Shaffer company.

* * *

Paul Ruedemann, vice president and general manager of Thompson & Black, Incorporated, of Tulsa, and Mrs. Ruedemann, have postponed indefinitely their proposed visit to Mr. Ruedemann's parents in Albany, N. Y. Mr. Ruedemann's firm is starting several new drilling projects on acreage recently acquired, and expects to have several new wells drilling as soon as the weather will permit.

* * *

L. V. Nicholas, president of the National Petroleum Marketers Association, did not take his promised vacation but returned to his desk after the Fort Worth meeting at which he was chosen a director of the American Petroleum Institute. He now proposes to take a slightly longer vacation beginning with Christmas but he will not be away from the office of the organization for any lengthy period.

* * *

W. J. Archer, representative of the Pan American Petroleum & Transport Company, has returned to New York from a visit to the oil fields of Europe and the Near East. He was in Egypt at the time of the assassination of Sir Lee Stack. Mr. Archer dined with the Sirdar the night before he was killed. Every American and European in Egypt felt before this happened that the air was surcharged with an impending struggle, Mr. Archer says.

* * *

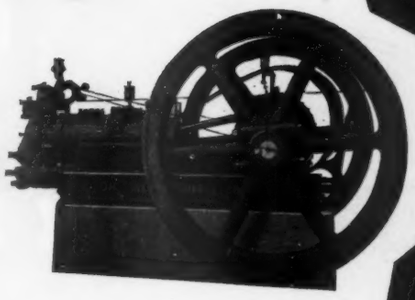
Thomas C. McBride, Philadelphia manager of the Worthington Pump & Machinery Corporation, has been awarded the Edward Longstreth medal of the Franklin Institute, in recognition of his invention of the Worthington locomotive feed-water heater. Mr. McBride is a member of the Engineers' Club of Philadelphia, the Manufacturers' Club and the Franklin Institute, and a past president of the former organization. He has been experimenting with locomotive feed-water heating since 1903, and evolved the basic principles of the present Worthington design in 1915.

* * *

Frank C. Flanagan, vice president of the Galena-Signal Oil Company of Ireland, has been in Houston as the guest of J. S. Cullinan. The Irish subsidiary of the Galena-Signal Oil Company has just completed large terminal facilities at Dublin and two tankers have been unloaded there with cargoes of refined oil from the Houston plant. The arrival of the ships was observed as a big event by Government officials and business men, terminating with a banquet in Dublin. Mr. Flanagan said the Galena-Signal Oil Company was the first of the large American oil companies to secure terminals in Ireland and market on a large scale. The visitor is a relative of W. T. Cosgrove, president of the Irish Free State.

TWO STARS

GREAT ★ BEAR



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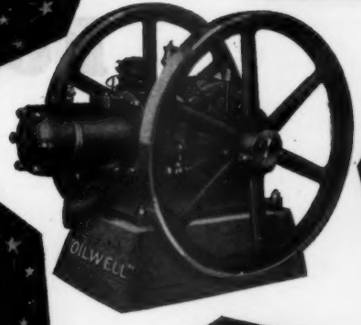

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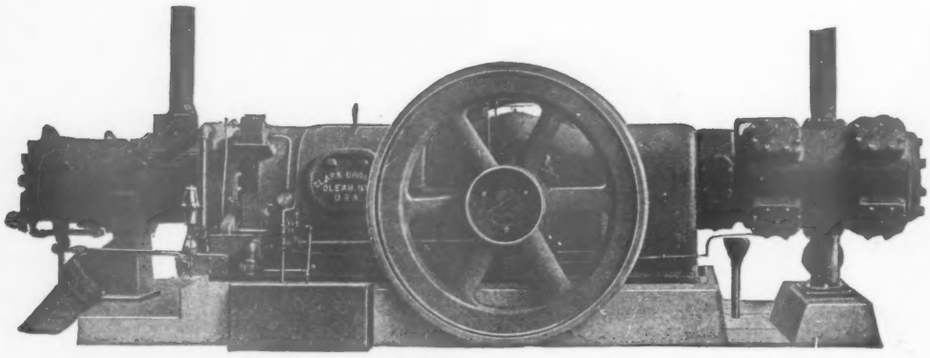

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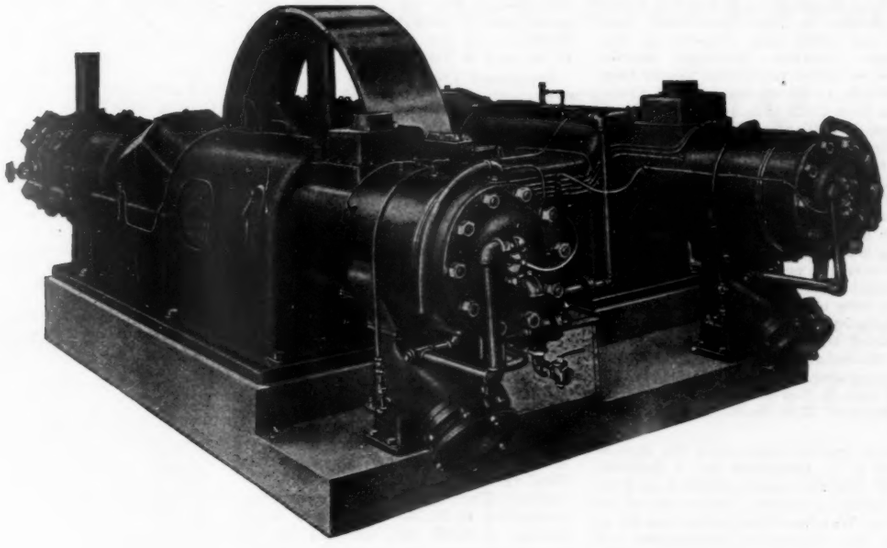

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Initial Production Gains in December

Wortham Field in Texas and Development in Oklahoma Largely Responsible. New Work Also Greater

Summary of All Fields

Field—	Comp.	Prod.	Dry	Gas
Eastern	363	1,643	57	76
Lima	46	648	6	6
Central Ohio	53	154	8	38
Indiana	16	114	3	3
Kentucky	96	1,620	18	7
Tennessee	5	25	4	..
Alabama	1	..	1	..
Illinois	15	228	8	..
Kansas	124	4,304	79	14
Oklahoma	382	122,702	116	41
North Central Texas	223	30,518	84	4
East Central Texas	30	76,805	10	..
Gulf Coast	64	8,952	26	..
Southwest Texas	14	5,000	3	..
Louisiana-Arkansas	114	6,557	36	18
Wyoming	43	4,215	7	2
Montana	17	2,380	7	2
Colorado	1	..	1	..
Utah	3	..	1	2
Total December	1,610	265,865	475	213
Total November	1,599	193,083	423	231
Difference	11	72,782	52	18

Rigs and Wells Drilling

Field—	Rigs	Drg.	Total
Eastern	194	394	588
Lima	7	49	56
Central Ohio	40	74	114
Indiana	1	10	11
Kentucky	15	255	270
Tennessee	7	10	17
Mississippi	6	20	26
Alabama	1	9	10
Georgia	1	4	5
Illinois	2	20	22
Kansas	71	358	429
Oklahoma	181	987	1,168
North Central Texas	58	299	357
East Central Texas	126	207	333
Gulf Coast	27	140	167
Southwest Texas	38	90	128
Louisiana-Arkansas	85	210	295
Wyoming	91	281	372
Montana	13	103	116
Colorado	14	75	89
Utah	1	26	27
New Mexico	2	30	32
Total December	981	3,651	4,632
Total November	856	3,465	4,321
Difference	125	186	311

While there were only 11 more wells completed in fields east of California during December than in November, the initial production in December showed a gain of 72,782 bbls. as compared to November. The East Central Texas Field registered an increase in initial output of wells completed of 59,514 bbls., due largely to the new field at Wortham. Oklahoma showed a gain of 27,732 bbls.

New work also showed a gain in December, there being 125 more rigs up and 186 more wells drilling than during the previous month.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Osage	46	8,910	12	3
Tulsa	27	530	15	3
Okmulgee	25	686	14	2
Seminole	77	46,440	4	6
Okfuskee, Hughes and McIntosh	39	23,041	12	4
Muskogee & Wagoner	19	130	10	6
Creek	46	5,340	13	6
Pawnee	14	965	6	..
Kay	12	21,754	1	1
Payne	4	216	2	1
Lincoln	6	482	..	1
Garfield and Noble	13	11,904	3	..
Carter	21	2,054	2	2
Stephens and Cotton	17	195	10	4
Miscellaneous	16	55	11	3
Total December	382	122,702	116	41
Total November	358	94,970	95	56
Difference	24	27,732	21	15

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Total
Tulsa	8	19	27
Osage	7	83	90
Okmulgee	19	42	61
Seminole	22	137	159
Creek	19	67	86
Muskogee and Wagoner	6	31	37
Okfuskee, Hughes and McIntosh	38	139	177
Pawnee	9	52	61
Payne, Lincoln & Kay	21	120	141
Garfield and Noble	9	78	87
Carter	5	47	52
Stephens and Cotton	6	33	39
Miscellaneous	12	139	151
Total December	181	987	1,168
Total November	188	1,044	1,232
Difference	7	57	64

With 18 more oil wells in December than in November, initial daily production in Oklahoma increased 27,732 bbls. to a total of 122,702 bbls. Noteworthy is the fact that this increased initial production came from an increase of only 18 oil wells over the record of November. While the initial production of Osage County wells was less by 1,267 bbls., and Seminole and Pawnee Counties' decline in flush production was 3,742 and 3,125 bbls. respectively, the Okfuskee - Hughes - McIntosh district boosted its initial production figures from 10,765 bbls. to 23,041 bbls. Creek County rose from 3,639 bbls. to 5,340 bbls., an increase of 1,701 bbls., Garfield and Noble Counties increased their combined initial production from 2,635 to 11,904 bbls., the largest proportional increase. Kay County's totals showed 21,754 bbls., a gain of 11,729 bbls. over November.

Dry holes were on the increase, there having been 116 in December, an increase of 21 over the previous month. Gassers completed were fewer in number, there having been only 41 to compare with November's 56. The grand total of wells completed was 382, an increase of 24 over November's figures.

The number of rigs built numbered 7 fewer than in November, while there was a decrease of 57 in the number of drilling wells.

While anxious eyes await the deepening of J. L. Donahoe's No. 1 Zoldoski, C NW NW SE, Section 22-23-4, in Pawnee County, a wildcat 8 miles east of the Otoe or Watchorn Pool, there can be no doubt that important development will start immediately in that vicinity. The Donahoe well, which came in at 225 bbls. from Wilcox sand at a depth of 3,714 feet, and only 3 feet in the sand, was making 100 bbls. a day when this was written. Drilling activity will also no doubt increase in Lincoln County since the completion of the Magnolia Petroleum Co.'s No. 1 Smith, SW cor. SE, Section 34-15-5, which found a sand at 3,460-67 feet that was good for 460 bbls. at the start, after having been a producer at the rate of 200 bbls. from a sand at 3,424-46 feet.

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	3	.....	3	..
Cowley	13	2,070	8	6
Elk and Chautauqua	16	55	9	4
Greenwood	15	515	5	1
Wilson	9	120	7	1
Montgomery	36	884	27	1
Woodson	3	85	1	..
Lyon	4	50	3	..
Sumner	4	...	4	..
Miscellaneous	16	525	12	1
Total December	124	4,304	79	14
Total November	92	6,126	42	7
Difference	32	1,822	37	7

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Total
Butler	3	25	28
Cowley	13	72	85
Elk and Chautauqua	4	27	31
Greenwood	25	56	81
Montgomery	6	37	43
Russell	2	10	12
Sumner	5	13	18
Wilson	1	10	11
Woodson	1	10	11
Miscellaneous	11	98	709
Total December	71	358	429
Total November	80	312	392
Difference	9	46	37

The records of Cowley County operations for the month of December again are the most interesting for high initial producers. With but four completions, it contributed 2,070 bbls., nearly half of the flush production of the State. Greenwood County had nine successful completions, with a total initial production of 515 bbls., an average of 57 bbls. per well, while Cowley County's average was 517 bbls. per well. Though Montgomery County's total show only eight new oil wells out of 36 holes drilled, the average initial production was more encouraging, being 110 bbls.

Initial production of Kansas in December fell off 1,822 bbls., compared to results in the previous month, or nearly a third. This was not so much doe to the fact that the average initial production per well was lower, but that there were fewer successful completions. November's 6,126 bbls. came from 43 wells, while there were but 31 oil wells completed in December, making a lower percentage of successful completions in December, 25 per cent as compared to 47 per cent in November.

Greenwood County heads the list for new rigs, there having been 25 erected, though Cowley County had more wells drilling, with but 13 new rigs. There were nine rigs fewer built in the State in December than in November. The number of drilling wells was greater by 46, there having been 358 as compared to 312 in November.

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl
Limestone-Freestone	12	76,145	1	..	117	149	266
Navarro	18	660	9	..	3	18	21
Miscellaneous	..	.....	..	..	6	40	46
Total Dec.	30	76,805	10	..	126	207	333
Total Nov.	24	17,291	5	1	29	79	108
Difference	6	59,514	5	1	97	128	225

The Wortham Field in Limestone and Freestone Counties, which was opened in the closing days of November by Col. A. E. Humphreys and his associates (the Boyd Oil Co.), was the sensation in December. Twelve oil wells with an initial production of 76,145 bbls. a day or an average of 6,345 bbls. per well was the new field's record for the month. One dry hole test drilled off structure helped to show the trend of the shoestring formation from which the oil comes. At the close of the November report there were 14 rigs up and 8 wells drilling, but at the close of the December report there were 117 rigs and 149 wells drilling, and had it not been for the unusually severe weather conditions which lasted over a week in the latter half of the month much more work would have been started, while at least half a dozen wells additionally would have been completed on inside acreage. It had been predicted that by the New Year's day the field would be producing 100,000 bbls. a day, but the weather interfered.

Developments in the Powell and Richland Pools are nearly at a standstill excepting for sporadic drilling of shallow wells in Powell. Both fields have reached a settled-down stage, where their limits are known. Nine oil wells completed in all Navarro County averaged 73 bbls. per well in initial production.

NORTH CENTRAL TEXAS

Summary of Wells Completed

District—	Comp.	Prod.	Dry	Gas
Wichita	32	1,103	14	0
Archer County	117	17,675	36	0
Young	13	590	6	0
Stephens	10	315	4	0
Eastland	11	330	2	1
Wildcats	40	10,505	22	3
Total December	223	30,518	84	4
Total November	205	22,584	82	9
Difference	18	7,934	2	5

Summary of Rigs and Wells Drilling

District—	Rigs	Drg.	Ttl.
Wichita	10	23	33
Archer	5	84	89
Young	6	30	36
Stephens	8	34	42
Eastland	4	22	26
Wildcats	25	106	131
Total December	58	299	357
Total November	60	315	375
Difference	2	16	18

The gain in completions was largely in Archer County and the wildcats, Archer County production being 3,446 bbls. more and the wildcat production 4,665 bbls. larger than in November.

The decline in operations was chiefly in Stephens County and the wildcats.

NORTH LOUISIANA AND ARKANSAS

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Union County	35	1,700	14	0	21	37	58
Ouachita Co..	30	2,637	2	0	26	40	66
Stephens	3	0	3	0	0	2	2
Nevada	0	0	0	0	1	0	1
Bellevue	1	20	0	0	0	2	2
Caddo	3	35	1	0	1	7	8
Cotton Valley	9	2,150	0	2	13	36	54
La. wildcats.	28	15	11	16	11	55	66
Ark. wildcats	5	0	5	0	7	31	38
Total Dec...	114	6,557	36	18	85	210	295
Total Nov...	71	17,159	19	17	74	212	286
Total	43	10,602	17	1	11	2	9

Twenty-two fewer completions in Union County with 1,170 bbls. less; 14 fewer completions in Ouachita County with 1,378 bbls. less production and 1 less completion in Cotton Valley with 13,135 bbls. less, account for the December decline compared with November. There were 58 operations in progress at the close of December in Union County compared with 72 at the close of the previous month, but the net reduction for the whole field was only 9.

ROCKY MOUNTAIN AREA

Summary of Field Operations

WYOMING

Field—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Big Muddy	..	.....	..	..	..	3	3
Salt Creek	27	3,380	..	..	63	70	133
Big Horn Basin	2	190	1	..	10	53	63
Lance Creek	1	.....	1	..	..	4	4
Lost Soldier	2	630	2	1	5	37	42
Rock River	1	55	..	..	1	18	19
Fremont County	2	.....	1	1	..	25	25
Osage	2	25	..	..	7	11	18
Natrona County	1	.....	1	..	..	19	19
Lincoln County	1	25	..	..	4	8	12
Baxter Basin	..	.....	..	..	1	11	12
Miscellaneous	1	.....	1	..	..	22	22
Total Dec.	43	4,215	7	2	91	281	372
Total Nov.	57	6,450	6	1	83	277	360
Difference	14	2,235	1	1	8	4	12

Montana

Sunburst	12	2,380	3	1	7	41	48
Miscellaneous	5	.....	4	1	6	62	68
Total Dec.	17	2,380	7	2	13	103	116
Total Nov.	13	1,387	2	..	13	107	120
Difference.	4	993	5	2	..	4	4

Colorado

All operations	1	.....	1	..	14	75	89
Total Nov....	..	.....	..	..	14	76	90
Difference .	1	.....	1	..	..	1	1

Utah

All operations	3	.....	1	2	1	26	27
Total Nov. .	1	.....	1	..	2	26	28
Difference .	2	.....	..	2	1	..	1

New Mexico

All operations	..	.....	..	..	2	30	32
Total Nov. .	3	95	..	..	2	22	24
Difference .	3	85	..	..	..	8	8

Completions in Salt Creek were 27 against 48 in November and production 3,380 bbls. against 6,305 bbls. in the previous month. At the close of December there were 7 more operations.

There was an increase of almost 1,000 bbls. in Montana production, practically all from the Sunburst Field.

LIMA FIELD

Summary of Field Operations

Couty—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	12	191	1	..	1	6	7
Hancock	2	25	..	..	2	6	8
Allen	2	80	..	..	1	3	4
Auglaize	3	55	..	..	..	6	6
Mercer	7	49	..	2	..	5	5
Van Wert	..	.....	..	..	1	4	5
Seneca	..	.....	..	..	..	2	2
Lucas	1	.....	..	1	..	1	1
Ottawa	6	40	2	..	..	4	4
Darke	3	15	1	..	..	..	..
Shelby	4	8	1	2	..	3	3
Paulding	1	50	..	..	2	4	6
Hardin	4	135	..	1	..	1	1
Defiance	..	.....	..	..	..	1	1
Crawford	1	.....	1	..	..	1	1
Michigan	..	.....	..	..	..	2	2
Total Dec..	46	648	6	6	7	49	56
Total Nov.	51	595	6	7	4	60	64
Difference .	5	53	..	1	3	11	8

December did not prove a very active month in the Lima Field of northwestern Ohio, due in part to inclement weather conditions and the holiday season, to say nothing of the low price of crude. During the closing month of the year a total of 46 wells were completed, with 6 dry holes, 6 gas wells and a new production of 648 bbls. Compared with the November figures this shows a decrease of five in completed wells, one less gas well, the same number of dry holes, while production gained 53 bbls.

In new work under way at the close of December there were 7 rigs and 49 drilling wells against 4 rigs and 60 drill-

(Continued on Page 102)

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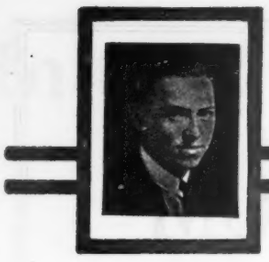

Oklahoma Field Operations

By C. D. Lockwood

Tonkawa Field extended quarter mile on north and southeast ends when three new wells start flowing from deep sand. Cold weather prevents deepening of J. L. Donahoe's wildcat in Pawnee County, which was producing 150 barrels at 2 feet into the Wilcox sand. Gypsy Oil Company buys acreage near.

With a dry hole one location to the north, the Phillips Petroleum Co.'s No. 1-A McDaniels, SW cor. NE NE, Section 34-25-1w, Tonkawa Field, Kay County, drilled into the deep sand at 4,031 feet, and at a depth of 4,054 feet made 320 bbls. the first two hours. At the southeast end of the field, two more wells, extended production a quarter of a mile, when the Gypsy Oil Co.'s No. 88 Shawver, C NW SE NW, Section 2-24-1w, Noble County, had sand frm 4,150-82 feet, and made 2,400 bbls., and the Comar Oil Co.'s No. 9-W Gaume, NW cor. SW NE, Section 2-24-1w, reached the pay horizon at 4,005 feet and at 10 feet in made 571 bbls. the first 24 hours.

Cold weather continued to hold up the deepening of the Donahoe discovery well in NW cor. NW SE, Section 22-23-4, Pawnee County. The well was making 150 bbls. at 2 feet in the sand, and the owners had expected to drill farther in on Monday, but frozen water lines prevented carrying out their plans. With the nearest production in the Watchorn or Otoe Pool, 8 miles west, much speculation is being made as to the potentialities of the pool. The Gypsy Oil Co. evidently see great possibilities here as it has added 80 acres to the forty it previously held. The new acreage is in the north half of the northeast quarter while the old 40-acre lease is in the southwest corner of the northeast quarter, Section 22-23-4. Donahoe and others own 80 acres in the north half of the southeast, the Prairie Oil & Gas Co. has a lease on the entire southwest quarter, the F. & N. Oil Co. has the east half of the northwest, and the Gates Oil Co. the west half of the northwest. The Phillips Petroleum Co. owns leases north of the discovery well in Sections 2, 4, and 5. The Gulf pipe line from Tonkawa runs 1 mile south of the Donahoe well and will run a line up to the new pool.

Tonkawa Production

The average production in the Tonkawa Field for the week ending December 22 took a drop of 7,007 bbls., with an increase of one producing well. Production was as follows, given by companies.

Company—	Wells	Bbls.
Amerada Petroleum Corp.	39	12,034
Blackwell O. & G. Co.	33	6,975
Carter Oil Co.	5	136
Champlin Ref. Co.	2	14
Champlin Ref. Co. and Twin States Oil Co.	1	8
Comar Oil Co.	344	34,019
Cosden O. & G. Co. and Marland Oil Co.	18	238
Gypsy Oil Co.	103	16,381
Healdton O. & G. Co.	28	1,066
Wentz Oil Corp.	47	14,594
McMan Oil Co.	1	3
Pennok Oil Co.	32	6,655
Phillips Pet. Co.	2	75
Prairie O. & G. Co.	12	402
Sinclair O. & G. Co.	1	13
T. B. Slick and Comar Oil Co.	36	7,160
Southwestern Pet. Co.	15	570
The Texas Co.	5	35
White Eagle Ref. Co.	7	121
Total	731	100,498
Total last week	730	107,505
Difference	1	7,007
Deep Sand Only		
Amerada Pet. Corp., Goltry	6	11,159
Pennok Oil Co., Endicott	7	5,500
Comar Oil Co., Beverlin	3	6,336
Comar Oil Co., Pettit	3	1,466
Comar Oil Co., L. Endicott	4	3,418
Comar Oil Co., E. Endicott	6	13,286
Comar Oil Co., Gaume	1	668
Gypsy Oil Co., Shawver	10	14,741
T. B. Slick, Endicott	7	5,612
Blackwell O. & G. Co., McDaniel	4	6,297
Wentz Oil Corp., McKee	5	13,342
Total	58	81,825
Total last week	57	86,887
Difference	1	5,062

The daily average of pipe line runs from the Tonkawa Field during the week ending December 22 were as follows: Kay County Pipe Line Co., 32,041 bbls.; Osage Pipe Line Co., 15,612 bbls.; Gulf Pipe Line Co., 15,612 bbls.; Champlin Refining Co., 10,040 bbls.; Bolene Refining Co., 3,642 bbls.; Globe Refining Co., 3,507 bbls.; Moore Refining Co., 6,549; Producers & Refiners Corp., 402; Oklahoma Pipe Line Co., 136 bbls.; Empire Pipe Line Co., 2,345 bbls.; Golden Rule Refining Co., 395 bbls.; Illinois Pipe Lines Co., 1,795 bbls.; Cosden Pipe Line Co., 2,090 bbls.; storage, 6,030 bbls.

Tonkawa Deep Wells Completed

The following wells in Section 34-29-1w, in the Tonkawa Field, were deepened to the depths indicated, and are now regarded as completed. Amerada Petroleum Corp.'s No. 33 Woods, SE cor. SW NE, 4,006-4,146 feet, 1,070 bbls.; No. 34 Woods, CSL SW NE, 4,055-4,182 feet, 1,350 bbls.; No. 35 Woods, NW cor. SW NE, 4,050-4,168 feet, 1,800 bbls.; No. 36 Woods, NE cor. SW NE, 3,990-4,121 feet, 1,425 bbls.; No. 37 Woods, SE cor. NW NE, 4,037-4,150 feet, 1,450 bbls.; No. 38 Woods, SW cor. NW NE, 4,073-4,155 feet, 3,393 bbls.; Blackwell Oil & Gas Co.'s No. 1-C Corrigan, SW cor. SE NE, 3,975-4,100 feet, 2,100 bbls.; No. 3-C Corrigan, NW cor. SE NE, 4,018-4,116 feet, 2,715 bbls.; No. 4-C Corrigan, SE cor. SE NE, 4,028-4,130 feet, 1,575 bbls; No. 7-B Corrigan, NE cor. SE NE, 4,012-4,060 feet, 476 bbls.; Comar Oil Co.'s No. 1-W Clements, SE cor. NW, 4-143-4,263 feet, 2,607 bbls.; No. 4-W Clements, NE cor. SE NW, 4,101-4,221 feet, 3,187 bbls.; Comar Oil Co.'s No. 2-W Endicott, SE cor. NE SE, 3,980-4,100 feet, 1,600 bbls.; No. 2-W Endicott, NW cor. SE, 4,099-4,222 feet, 2,975 bbls.; No. 3-W Endicott, SW cor. NW SE, 4-130-4,245 feet, 2,729 bbls.; No. 4-W Endicott, NE cor. NW SE, 4,040-4,160 feet, 2,300 bbls.; No. 6-W Endicott, SE cor. NW SE, 4,071-4,191 feet, 1,900 bbls.; No. 7-W Endicott, SW cor. NE SE, 4,044-4-164 feet, 1,950 bbls.; Wentz Oil Corp.'s No. 18 McKee, C SE NE SW, 4,200-4,284 feet, 2,411 bbls.; No. 45 McKee, NE cor. SW, 4,155-4,275 feet, 6,097 bbls.; Pennok Oil Co.'s No. 1-D Endicott, SE cor. 4,085-4,164 feet, 1,000 bbls.; No. 4-D Endicott, NE cor. SE SE, 4,013-70 feet, 900 bbls.; 5-D Endicott, NW cor. SW SE, 4,215-44 feet, 800 bbls.; No. 8-D Endicott, NW cor. SE SE, 4,130-4,201 feet, 805 bbls.

The Comar Oil Co.'s No. 5-W Endicott, SE cor. NW SW, Section 35-25-1w, was completed at 4,040 feet in sand, first oil 3,918 feet, and was making 1,200 bbls. No. 7-W Endicott, SW cor. NE SW, also was completed and was making 597 bbls. from sand at 3,915-4,020 feet.

Burbank Production

The daily average production by companies in the Burbank Pool during the week ending December 25 was as follows:

Company—	Wells	Bbls.
Carter Oil Co.	225	10,735
Comar Oil Co.	7	126
Cosden Oil & Gas Co.	105	2,884
Devonian Oil Co.	16	257
Gardner Petroleum Co.	20	401
Gypsy Oil Co.	196	4,476
Kewanee Oil & Gas Co.	25	461
Laurel Oil & Gas Co.	16	251
Lorraine Petroleum Co.	15	185
Midland Oil Co.	37	1,237
Mid-Kansas Oil & Gas Co.	30	1,407
Peters & Oilphant	2	172
Phillips Petroleum Co.	111	11,572
Phillips Petroleum Co. and Delmar Oil Co.	16	1,606
Phillips Pet. Co. and Skelly Oil Co.	175	4,402
Prairie Oil & Gas Co.	106	3,163
Producers & Refiners Corp.	29	367
Roxana Petroleum Corp.	55	641
Simons-Moore et al	29	236
Sinclair Oil & Gas Co.	145	2,442
Skelly Oil Co.	22	1,056
Tidal-Osage Oil Co.	43	705
The Texas Co.	7	632
Twin State Oil Co.	24	105
Total	1,465	50,476
Kay County Extension		
George S. Bole	3	339
Carter Oil Co.	11	1,200
Comar Oil Co.	19	994
Cosden Oil & Gas Co.	16	983
Gyps Oil Co.	19	567
Lorraine Petroleum Co.	5	302
Mid-Kansas Oil & Gas Co.	10	891
Phillips Petroleum Co.	31	3,832
Prairie Oil & Gas Co.	4	266
Pure Oil Co.	5	290
Roxana Petroleum Corp.	8	290
Sinclair Oil & Gas Co.	5	304
Skelly Oil Co. and Phillips Pet. Co.	20	520
Dye-Tomlinson	8	511
The Texas Co.	16	264
Twin State Oil Co.	15	693
Total	195	12,254
Grand total	1,660	62,730
Total last week	1,659	69,394
Difference	1	6,664

Average daily pipe line runs from the Burbank Field during the week ending December 25 were as follows: Gulf Pipe Line Co., 5,812 bbls.; Cosden Pipe Line Co., 5,407 bbls.; Kay County Pipe Line Co., 3,312 bbls.; Osage Pipe Line Co., 194 bbls.; Oklahoma Pipe Line Co., 15,329 bbls.; Prairie Pipe Line Co., 3,779 bbls.; Sinclair Pipe Line Co., 2,746 bbls.; Moore Refining Co., 1,305 bbls.; Standish Pipe Line Co., 16,228 bbls.; Empire Pipe Line Co., 2,053 bbls.; Mid-Kansas Oil & Gas Co., 2,523 bbls.; Twin State Oil Co., 1,645 bbls.; Ozark Pipe Line Co., 1,594 bbls.; Delmar storage, 603 bbls.

Other Pawnee County Operations

The Josey Oil Co.'s No. 1 Scott, SW cor. NW NW, Section 22-20-6, in Pawnee County, was deepened and flowing 4,500,000 feet of gas from sand at 3,000-24 feet.

The Magnolia Petroleum Co.'s No. 7 D. Miller, SW cor. NW NW, Section 4-22-3, is a rig. The same company is building a rig for No. 4 Saunders, NE cor. NW SW, Section 4-22-3, and has a rig up for No. 1 Altaffer, SE cor. NE NE, Section 5-22-3.

In the Roxana Pool

The Roxana Petroleum Corp.'s No. 1 Culler, C NW NE NW, Section 12-8-8, in the Roxana Pool, in Hughes County, was flowing 1,200 bbls. from sand at 3,404-06 feet, along with 500 bbls. of water and 40,000,000 feet of gas. No. 2 Culler, C NE NW NW, Section 12-8-8, found sand at 3,425-35 feet, and was flowing 100 bbls. and 1,000,000 feet of gas. No. 3 Buckner, NW cor. NW, Section 12-8-8, topped sand at 3,422 feet, and was rigging up cable tools to drill in.

Hughes County

The Roxana Petroleum Corp.'s No. 1 D. Culler, C SW SE SW, Section 1-8-8, found sand at 3,429-49 feet, and was making 340 bbls. of oil, with 20 bbls. of water and 40,000,000 feet of gas.

The Mid-Kansas Oil & Gas Co.'s No. 1 Baker, C NE SE NW, Section 4-9-11, found sand at 3,075-98 feet, and drilled to 3,771 feet. After plugging back to 3,098 feet, it was good for 35 bbls. with a 20-quart shot. The same owner's No. 3 Bruner, C NE SW NE, Section 9-9-11, made 20 bbls. after a 17-quart shot at 2,970-87 feet.

The Douglas Oil Co.'s No. 1 Johnson, C NW SW, Section 12-5-9, was dry and abandoned at 3,190 feet.

The Kingwood Oil Co. has a rig up for No. 1 McCalvert, C NW NW NW, Section 29-9-10.

The Magnolia Petroleum Co.'s No. 1 Baker, C NW SE SW, Section 4-9-11, is a rig. The Mid-Kansas Oil & Gas Co.'s No. 1 Baker, C NE SE SW, Section 4-9-11, was drilling at 300 feet. The Tidal-Osage Oil Co.'s No. 5 Baker, C NW SW SE, Section 4-9-11, was spudding in.

The Magnolia Petroleum Co.'s No. 1 Manley, C NW SE SW, Section 23-7-8, was spudding in.

Progress in the Papoose Pool

T. B. Slick's No. 3 Sand, C SW SE SE, Section 35-10-9, in the Papoose Pool, topped sand at 3,345 feet, and at 3,361 feet had 2,000 feet of oil in the hole.

The Kingwood Oil Co.'s No. 3 Sand, C NE SE SW, Section 35-10-9, was completed with sand at 3,310-26 feet, flowing 2,497 bbls.

The Carter Oil Co.'s No. 1 Johnson, C NW SW SE, Section 33-10-9, topped sand at 3,087 feet, and was making 219 bbls. from a total depth of 3,105 feet.

Cosden Oil & Gas Co.'s No. 7 Alexander, C NE NE NW, Section 3-9-9, found sand at 3,020-35 feet, and was good for 50 bbls.

T. B. Slick's No. 1 Grayson, C SW SE NE, Section 3-9-9, was producing 1,710 bbls. from sand at 3,300-22 feet, and cutting 7 per cent. The same owner's No. 1 Grayson, C NW NE NE, Section 3-9-9, found sand at 3,300 feet, and had a fishing job at 3,303 feet, with the well flowing 15,000,000 feet of gas. T. B. Slick's No. 3 Grayson, C NW NW NE, Section 3-9-9, had 1,000 feet of oil in the hole from sand at 3,296-98 feet, and was drilling ahead making 500,000 feet of gas.

New operations and drilling depths of wells in the Papoose Pool include Arkansas Fuel Co.'s No. 1 Barnett, C SE SW SW, Section 33-10-9, building rig; Prairie Oil & Gas Co.'s No. 4 Vincent, C SW SW SW, Section 34-10-9, drilling at 1,225 feet, flowing 5,000,000 feet of gas from sand at 1,127-38 feet; Cosden Oil & Gas Co.'s No. 2 Carbage, C SW NE SW, Section 35-10-9, drilling at 550 feet; No. 3 Carbage, C SE NW SW, Section 35-10-9, drilling at 215 feet; No. 4 Carbage, C SW NW SW, Section 35-10-9, spudding in; Kingwood Oil Co.'s No. 7 Sands, C NE SW SW, Section 35-10-9, drilling at 760 feet; Prairie Oil & Gas Co.'s No. 3 Sawyer, C NE NE SE, Section 35-10-9, drilling at 500 feet; No. 4 Sawyer, C SW NE SE, Section 35-10-9, drilling at 300 feet; T. B. Slick's No. 6 Sand, C SE SE SE, Section 35-10-9, spudding in; No. 7 Sands, C NE SE SE, Section 35-10-9, spudding in; Amerada Petroleum Corp.'s No. 1 Harjo, C SW SW SW, Section 36-10-9, drilling at 300 feet; Independent Oil & Gas Co.'s No. 2 Bruner, SW cor. NW NW, Section 1-9-9, spudding in; Josey Oil Co. and Margay Oil Co.'s No. 1 Arbor, C NW SW NW, Section 1-9-9, spudding in; Independent Oil & Gas Co.'s No. 3 Alexander, C SE NE NE, Section 2-9-9, spudding in; same owners' No. 4 Alexander, C SW NE NE, Section 2-9-9, drilling at 375 feet; T. B. Slick's No. 4 Alexander, C SW NE NW, Section 2-9-9, drilling at 270 feet; Phillips Petroleum Co.'s No. 1 Arbor, C NW NE SE, Section 3-9-9, drilling at 1,710 feet, 5,000,000 feet of gas from sand at 1,065-85 feet; same owners' No. 2 Arbor, C NE NE SE, Section 3-9-9, rig up; T. B. Slick's No. 3 Grayson, C NE SE NE, Section 3-9-9, rig up; T. B. Slick's No. 3 Grayson, C NW NW SE, Section 3-9-9, rig up; same owner's No. 4 Grayson, C NE NE SW, Section 3-9-9, rig up; Mutual Oil Corp.'s No. 2 Carter, C NW NW NW, Section 4-9-9, drilling at 450 feet.

Okfuskee County

The Josey Oil Co.'s No. 1 Hulsey, SE cor. NE, Section 32-12-11, in Okfuskee County, was flowing 225 bbls. from a sand at 2,876-2,904 feet.

The Kiener Oil & Gas Co.'s No. 1 Hicke, C SE NE SW, Section 4-13-8, was dry and abandoned at 3,502 feet. The Anglo-Tex Oil Co.'s No. 1 Grayson, SW cor. NE, Section 33-12-11, was dry at 3,005 feet. Lyons & French's No. 5

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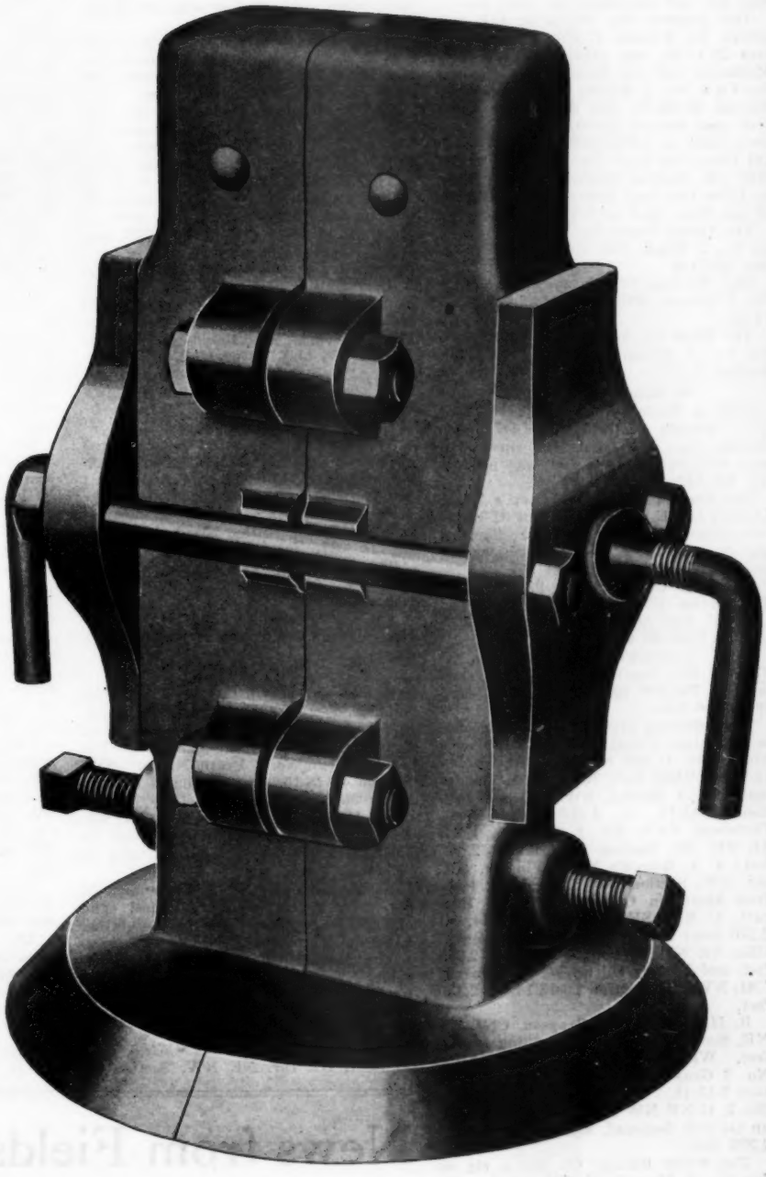

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Ingram, NE cor. SE NW, Section 13-11-11, was dry at 3,655 feet.

The Anglo-Tex Oil Co.'s No. 1 Cully, NW cor. NE NW, Section 4-11-11, shut in a 2,000,000-foot flow of gas in sand at 3,044-56 feet.

The Empire Gas & Fuel Co. and Gibson's No. 1 Grayson, C NW NW NW, Section 30-11-10, was shut in with 17,500,000 feet of gas in sand at 2,953-61 feet.

Dusters in Lincoln County

The Mountain State Oil Co.'s No. 1 Lewis, SW cor. Section 5-13-6, was dry at 4,505 feet.

The Magnolia Petroleum Co.'s No. 1 Bray, NW cor. SW SE, Section 18-14-5, was dry and abandoned at 4,625 feet.

The Atlantic Oil Producing Co. and others' No. 2 Gray, C SW SE SE, Section 36-12-10, was drilling at 120 feet. McMahon and the Atlantic Oil Producing Co.'s No. 2 Brook, C NE SE SW, Section 36-12-10, was drilling at 1,680 feet, and flowing 2,000,000 feet of gas from sand at 1,255-1,330 feet. Atlantic Oil Producing Co.'s No. 2 Fisher, C SE NW SE, Section 36-12-10, was drilling at 1,750 feet, and flowing 2,000,000 feet of gas from sand at 1,230-75 feet.

The Olean Petroleum Co. was rigging up No. 2 Wind, NW cor. SW SE, Section 36-11-9.

The Windsor Oil Co. was rigging up No. 3 Holmes, SW cor. NE, Section 12-11-11.

The Texas Co. has a rig on the ground for No. 1 Oleson, NW cor. SW SW, Section 2-14-5.

In Okmulgee County

Kelly & Noble's No. 2, CNL SW NW SW, Section 3-15-11, in Okmulgee County, was shot with 100 quarts in sand at 1,918-88 feet, and was producing 125 bbls.

The Amerada Petroleum Corp.'s No. 1 Larney, C NE NE SE, Section 31-13-12, encountered a 12,000,000-foot flow of gas in sand at 2,290-2,309 feet, which was shut in.

The Acta Oil Co.'s No. 2, CNL SW SE, Section 19-13-13, was completed as a 15-bbl. well after an 80-quart shot in sand at 1,565-95 feet.

E. J. Lambert's No. 6 Freeman, C SE NE NE, Section 7-13-15, was shut in with 750,000 feet of gas in a sand at 713-36 feet.

The following dry holes were reported in Okmulgee County: F. E. Rickow's No. 2 Hill, C NE SE NW, Section 26-11-11, at 2,900 feet; Kellough & Thompson's No. 1 Haines, SW cor. SE, Section 11-15-12, at 2,485 feet; Olean Petroleum Co.'s No. 1 Grayson, CNL SE SW SE, Section 11-15-12, at 2,630 feet; J. J. Rebold's No. 1 Vincent, SW cor. NW, Section 6-13-11, at 3,312 feet; Iron Mountain Oil Co.'s No. 11, Burnett, C SW SE, Section 13-13-14, at 2,170 feet; A. G. Hazlett's No. 1 Scott, CEL NE NE, Section 23-13-14, at 2,055 feet, and Lowery Oil Co.'s No. 1 Harris, CSL NW NE, Section 26-13-14, at 2,335 feet.

R. H. Bise's No. 1 Grayson, CNL SE NE, Section 3-15-11, was drilling at 750 feet. Webster and others are spudding No. 3 Grayson, SW cor. NE SW, Section 3-15-11. The Twin State Oil Co.'s No. 2, C NE NW NW, Section 10-14-14, an old well deepened, was cleaning out at 1,222 feet.

The Waite Phillips Co. has a rig up for No. 5 Murrell, C NE, Section 23-13-11. The Eastern Oil Co.'s No. 7 Berry, CEL NE SW, Section 25-13-11, was drilling at 2,340 feet. The Eagle Pitcher Lead Co. has a rig on the ground for No. 1 Webster, NE cor. NW NW, Section 33-13-12.

The Gladys-Belle Oil Co. and the Independent Oil & Gas Co.'s No. 6 Mitchell, CSL NW NW, Section 6-12-12, was drilling at 1,350 feet. Morton & Co.'s No. 2 Fisher, NW cor. SE NW, Section 7-12-12, was drilling at 1,000 feet.

The Monesett Oil Co.'s No. 1 Smith, NE cor. NW NW, Section 29-13-13, was drilling at 1,140 feet. The Utah Oil Co. has a rig up for No. 4 Scott, CSL SE NE, Section 15-13-14.

Sheldon Pool

The progress of operations in the Sheldon Pool, in Okmulgee County, were as follows: Hope Oil Co.'s No. 1 Vore, NE cor. NW SW, Section 34-16-12, rigging up machine; Central National Petroleum Co.'s No. 2 Barnett, NW cor. SE, Section 34-16-4, drilling at 600 feet; Sheldon and others' No. 2 Vore, SE cor. NE NW, Section 34-16-12, drilling at 700 feet; same owners' No. 1 Vore, NE cor. SW, Section 34-16-12, drilling at 500 feet; Superior Oil Corp.'s No. 1 Morey, SW cor. NE, Section 34-16-12, drilling at 600 feet; same owners' No. 3 Morey, CSL SW NE, Section 34-16-12, rig on ground and tools.

Wewoka Completions

The Magnolia Petroleum Co.'s No. 2 Walker, C SW SE SW, Section 29-8-8, in the Wewoka Field, was good for 441 bbls. when completed in sand at 3,120-36 feet.

Boggs & Sykes' No. 8 Willis, C SE NE NE, Section 31-8-8, completed in sand at 3,202-10 feet, was making 100 bbls. oil with 20 per cent water.

The Producers & Refiners Corp.'s No. 1 Salinda, C NE SW NE, Section 31-8-8, was producing 90 bbls. from sand at 3,178-3,200 feet, with 7 per cent water.

The Magnolia Petroleum Co.'s No. 2 Bagwell, CEL NE SW NW, Section 32-8-8, topped sand at 3,310 feet, and got oil at 3,215 feet; drilling at 3,237 feet, it had swabbed 152 bbls.

The Shaffer Oil & Refining Co.'s No. 6 Perryman, C NE NW NW, Section 32-8-8, drilled through sand at 3,119-55 feet, and into water at 3,312 feet; after plugging back to 3,155 feet. It was flowing 176 bbls. natural. No. 7 Perryman, C SW NW NW, Section 32-8-8, was flowing 915 bbls. from sand at 3,192-96 feet.

Seminole County

The Roxana Petroleum Corp.'s No. 1 Young, C NW NW NW, Section 16-9-8, Seminole County, was drilling at 900 feet.

The Dixie Oil Co.'s No. 2 Liggon, C NE SW SE, Section 25-8-7, was drilling at 1,375 feet.

The Magnolia Petroleum Co.'s No. 1 Jones, C NE NE SE, Section 35-8-7, was spudding in.

The Dixie Oil Co.'s No. 1 C NE NW NE, Section 6-7-8, was rigging up a rotary.

Tulsa County

K. V. Fuselman's No. 4 Pratt, SW cor. NE, Section 32-18-13, in Tulsa County, was completed for 10 bbls. in sand at 980-90 feet with a 40-quart shot. The same owner's No. 3 Pratt, NE cor. SW, Section 32-18-13, shot 40 quarts in sand at 980-90 feet, and was good for 10 bbls. Claud Hamilton's No. 3 Mullin, CSL SW NW, Section 32-18-13, was good for 10 bbls. after a 40-quart shot in sand at 975-80.

A. W. Anthony's No. 3 Whetstone, SE cor. SW, Section 3-16-12, topped sand at 1,658 feet, and at 8 feet in was getting 1,000,000 feet of gas.

The Mutual Oil Co.'s No. 3-A Partridge, NE cor. SW SW, Section 5-19-12, was completed at 2,048 feet, and was producing 12 bbls. from sand at 1,943-47 feet.

The Tulsa County Gas Co.'s No. 1 Yaunset, NE cor. NE NW, Section 34-19-13, was drilling at 1,335 feet, with 1,000,000 feet of gas coming from sand at 1,285-1,300 feet.

The Echo Oil Co.'s No. 3 Grayson, CWL SW NE, Section 5-19-12, was drilling at 1,200 feet. The Sand Springs Home's No. 3 Berryhill, SW cor. SE NW, Section 5-19-12, was drilling at 400 feet.

Wagoner County

Pat Malloy and others' No. 4 Poncil, NE cor. SW NW, Section 15-16-14, Wagoner County, was shot with 80 quarts in sand at 1,665-95 feet, and was good for 15 bbls.

In Creek County

The Pure Oil Co.'s No. 1 Stover, NW cor. NE SW, Section 7-14-7, in Creek County, was completed at a total depth of 4,147 feet, and plugged back to 4,139 feet, where it made 280 bbls. initial production. It was shot with 10 and 25 quarts, and was producing 225 bbls.

The Cosden Oil & Gas Co.'s No. 1 Bear, NE cor. SW, Section 24-14-9, was dry and abandoned at 3,000 feet.

F. R. Billingslea's No. 1 Micco, CEL NE NE, Section 28-14-9, made 308 bbls. the first 24 hours, and was flowing 250 bbls. through 2-inch tubing with packer.

Hall & Donnelly's No. 2 Johnson, C SE SE SW, Section 17-14-10, was completed for 240 bbls. natural in sand at 3,420-30 feet. C. F. Noble's No. 1 Cooper, C NE NE NW, Section 20-14-10, was producing 350 bbls. natural from sand at 3,387-90 feet. H. F. Wilcox' No. 1 Scott, NE cor. SE NE, Section 20-14-10, made 100 bbls. the first 24 hours and 90 bbls. the second 24 hours from sand at 3,335-50 feet.

The Empire Gas & Fuel Co.'s No. 1 Mitchel, SW cor. NW NW, Section 32-14-10, made 275 bbls. from sand at 3,435-46 feet, and after a 40-quart shot was good for 347 bbls.

The Texas Co.'s No. 1, SW cor. SE SW, Section 18-17-10, in Creek County, was drilling at 350 feet.

The Independent Oil & Gas Co.'s No. 1 Harrison, NE cor. SW, Section 36-16-10, was drilling at 2,715 feet in shale, and flowing 2,000,000 feet of gas from sand at 2,700-12 feet.

Woodberry and others' No. 1, Lot 3, Block 19, NW cor. SE SW, Section 8-16-12, topped sand at 2,027 feet, and at 10 feet in had 500 feet of oil in the hole.

The Pulaski Oil Co. has a rig on the ground for No. 7 Fulsom, SW cor. SW NE, Section 8-15-8. The Eastern Oil Co. was spudding in No. 8 Roberts, NW cor. SW SE, Section 17-15-8. The Jomac Oil Co.'s No. 4 Mitchell, SE cor. NE SW, Section 17-15-8, was drilling at 725 feet.

The Phillips Petroleum Co.'s No. 1 Arpoike, SW cor. SE SE, Section 13-14-9, was drilling at 3,001 feet.

The Atlantic Oil Producing Co. was spudding in No. 2 Nevvins, C SW SW SE, Section 17-14-10. C. F. Noble has a rig on the ground for No. 2 Cooper, C SE NE NW, Section 20-14-10.

Completions in Burbank

The Phillips Petroleum Co.'s No. 9, CWL SW NW NE, Section 18-27-6, topped sand at 2,970 feet. At a total depth of 2,993 feet it was shot with 60 quarts, and the hole bridged; there were 2,000 feet of oil in the hole.

The Texas Co.'s No. 5, CWL NW SW NW, Section 18-27-6, was good for 145 bbls. after a 125-quart shot at 2,929-81 feet; the sand was topped at 2,922 feet.

The Carter Oil Co.'s No. 11, C SE NW NW, Section 13-27-5, was completed at 3,030 feet, and after a 140-quart shot at 2,970-3,026 feet was good for 15 bbls.

The Phillips Petroleum Co.'s No. 11 Alfred, C SW NE NE, Section 14-27-5, was completed at 3,050 feet, and was making 50 bbls. after a 100-quart shot at 3,010-50 feet.

Foster & Norwood's No. 43, NE cor. NW NE SE, Section 23-24-9, Osage County, was dry and abandoned at 3,020 feet.

The Superior Oil Corp.'s No. 1, CNL NE NE NW, Section 10-23-8, was pumping 30 bbls. from the Burgess sand at 2,380-2,418 feet.

The Lorraine Petroleum Co. and others are building a rig for No. 1, NW cor. Section 8-24-8.

Flesher & Vierson's No. 1 Barnett, SE cor. Section 19-12-14, in McIntosh County, was completed in sand at 2,815-34 feet, and was producing 75 bbls.

Cromwell Field

The Waite Phillips Co.'s No. 6 Dunn, C NE NW SE, Section 4-10-8, in the Cromwell Field, topped sand at 3,436 feet, and oil at 3,445 feet. From a total depth of 3,500 feet, it was making 20 bbls. an hour, and 3,000,000 feet of gas. The Southwestern Petroleum Co.'s No. 3 Wisner, C SW SE NE, Section 4-10-8, topped sand at 3,398 feet, and drilled to 3,455 feet for 90 bbls. an hour.

The Carter Oil Co. was spudding in No. 3 Dunn, C SW NW NW, Section 3-10-8, and drilling at 298 feet in No. 2 Dunn, C NW SW NW, Section 3-10-8.

The Cosden Oil & Gas Co.'s No. 6 Toney, C NW NE SW, Section 4-10-8, topped sand at 3,409 feet, oil at 3,419 feet, and was drilling at 3,449 feet with a hole full of oil.

The Sinclair Oil & Gas Co.'s No. 8 Clark, C NE NE NE, Section 4-10-8, was drilling at 200 feet.

Carter County

The Magnolia Petroleum Co.'s No. 1 Hardin, C SE SW SE, Section 18-1s-3w, in the Sholom Alechem Pool, found gas in a sand at 2,070-90 feet, oil at 2,740-44 feet, oil and gas at 2,902-08 feet, and broken sands at 3,031-45 feet and 3,186-3,208 feet. Drilled to a total depth of 3,245 feet, it was making only 5 bbls.

The Eureka Oil & Gas Co.'s No. 1 Earl, NW cor. NE NW SE, Section 23-11-25, was dry and abandoned at 3,050 feet.

The Industrial Oil & Gas Co. had a dry hole, No. 1 Faultner, SW cor. SE SW, Section 8-10-26, at 3,110 feet.

The Schermerhorn Oil Co.'s No. 5 Palmer, SW cor. NE SW SW, Section 32-2s-2w, was making 340 bbls., natural, from sands at 2,529-32 feet and 2,532-51 feet.

The Coline Oil Co.'s No. 1 Miller, C NE NW SE, Section 8-3s-2w, was swabbing 120 bbls. from sand at 2,430-40 feet.

The Magnolia Petroleum Co. was building a rig for a twin well, No. 8 Lahman, C SE NE SW, Section 23-2s-3w, in Carter County. The Humble Oil & Refining Co. has a rig up for a twin well, No. 2 Williams, SW cor. NE SW, Section 27-2s-3w.

The Magnolia Petroleum Co. had a rig up for No. 1, C SW SW SE, Section 18-1s-3w.

Stephens County

The Carter Oil Co.'s No. 3 Cox, SE cor. NE NE, Section 25-1s-9w, in Stephens County, was making 8,000,000 feet of gas from sand at 2,122-30 feet, and was shut in.

The Magnolia Petroleum Co.'s No. 9 Wilson, CNL SW SE SE, Section 17-2s-7w, was dry and abandoned at 1,390 feet.

Everly, Krohn & Kirkwood's No. 2 McAdams, SW cor. NE, Section 7-2s-18w, was dry at 905 feet.

The McMan Oil Co.'s No. 15 school land, CEL SE SE NW, Section 33-1s-8w, was dry and abandoned at 2,709 feet.

(Continued on Page 96)

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Dec. 27.—In the Canadian West, severe cold weather has halted practically all drilling operations; and it is quite likely that many of the tests now shut down will not resume till spring. In the Monitor district, eastern Alberta, the West Regent Oil & Gas Co.'s deep test, Section 19-34-4w-4, which did not resume work till late in the season, is reported shut down for the winter. This test is reported around 3,500 feet.

In the Irma-Wainwright Field, east central Alberta, British Petroleum No. 2, Section 30-46-6w-4, recently cleaned out the sand which prevented pumping, when the well started flowing by heads. The production was reported almost as large as that when oil was first struck, over a year ago; but owing to lack of tankage the well has been again shut in. British Petroleums No. 4 is reported keeping up a small flow. No further work will likely be done till the weather improves. British Petroleums No. 5 is rigged up, but will not likely start drilling till the spring.

In the South, the development of the Johnson gusher on the Montana side of the border, seems to have revived interest in the Canadian Sweetgrass. A Texas syndicate is reported leasing acreage for a test next spring. Canadian interests seem to be giving a good deal of attention to the Kevin-Sunburst Field. The Queen City Oil Co., which includes a number of Regina, Sask., men, has finished No. 7 well in the Kevin-Sunburst Field, estimated good for 75 to 100 bbls. a day.

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TODAY is the day for the inauguration of new policies.

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THAT in 1925 my lease tanks will be Perfections.

THAT I'll eliminate evaporation entirely; cease paying tribute to this unseen thief.

THAT I'll increase the gravity of my crude thus insuring me greater returns for my production.

THAT I'll make my fire hazard negligible and reduce my insurance premium to almost nothing.

THAT I'll use the Perfection Flow Tank to separate oil from the gas whenever I need lease equipment of this character, thus enabling me to save a big sum for lease fuel or perhaps enriching my purse thousands of dollars in the sale of gas to the nearest gasoline plant.

THAT I'll patronize a company whose product is made right mechanically and which is backed by a guarantee of "service" not equalled in the oil fields of the country.

And on our part we can ill afford to allow a single resolution to be regretted, since the enviable reputation we now enjoy was only gained by almost 50 years of helping oil producers on the road to success.

And it's our fond hope that 1925 will be your best year!

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Gulf Coast Oil Operations

By L. P. McGreal

Many rigs in Gulf Coast area still idle due to frozen water lines. Production for past week, however, showed but little change. Sun Oil Co. completed 3,000-bbl. well in Humble Pool. Presence of new saline dome indicated at Flagg Pond, in Brazoria County. To drill formation tests.

HOUSTON, Tex., Dec. 29.—Conditions in the Coastal pools and the Southwest fields have not fully recovered from the effects of the storm. Many rigs are still idle, due to the freezing of water lines and difficulty in securing fuel. The holiday added to the dullness.

The estimated daily average gross production figures show very little change in either division. The estimate for the Coastal pools is placed at 75,500 bbls., compared with 75,605 bbls. last week. The estimate for the Southwest fields is placed at 46,135 bbls. against 46,340 bbls. last week. The development in Jim Hogg County is credited with a daily average of 3,900 bbls. for the week.

The following is the estimate for each district:

Batson	1,600
Blue Ridge	720
Barber Hill	140
Big Creek	650
Dayton	75
Damon Mound	1,260
Edgerly (La.)	515
Goose Creek	9,600
Humble	6,105
Hull	15,450
Jennings (La.)	845
Markham	170
Orange	11,900
Pierce Junction	475
Spindletop	1,230
Saratoga	1,490
Sour Lake	3,910
Vinton (La.)	5,790
Welsh-Anse La Bute (La.)	80
West Columbia	12,480
*Miscellaneous	1,015
Total	75,500
Southwest Fields—	
Luling	34,300
Laredo	4,375
Somerset	2,570
Calliham	530
Rockdale-Minerva	460
Jim Hogg County	3,900
Total	46,135
Grand total	121,635
Grand total last week	121,945
Decrease	310

*795 bbls. credited to Vacuum Co.'s well near Lockport, La.

The only completion of moment during the week was in the Humble Pool where the Sun Oil Co.'s No. 26 River on the north side is flowing 3,000 bbls. with ¾-inch chokers at 3,100 feet. The well is estimated at 5,000 bbls. without the chokers. Long and others No. 1 Koehler there is shut down after setting 10-inch casing at 565 feet. The Southern Petroleum Co. is working over Nos. 1 and 13 Landslide. The Galena-Signal Oil Co. is doing the same with No. 3 Stevenson. Marsailes Brothers' No. 3 Long is drilling.

New Dome

Use of the seismograph by the Gulf Production Co. has indicated the presence of a saline uplift located at what is known as Flagg Pond, in Brazoria County, 5 miles southwest of the West Columbia Pool. The Roxana Petroleum Co. tested that section some time ago with the Eotvos Torsional balance method and took up some acreage. The Gulf Co. will drill a series of formation tests to determine the depths of the salt and gyp rock. Meantime other companies and individuals are paying from $10 to $15 per acre bonus for leases there. Minneapolis parties have a derrick up 6 miles southwest of Angleton.

In Fort Bend County, the Gulf Production Co. is rigging No. 3 Moore Dome, another saline uplift recently indicated by the seismograph. It is a formation test. Nos. 1 and 2 Moore were abandoned in gyp rock, which usually overlies the salt. The Rycade Petroleum Co.'s No. 3 Nash off the Wisdom Dome is drilling in gyp at 923 feet. It, too, is a recently located saline uplift. The Pathfinder Oil Co.'s No. 2, Section 101, is rigging. It is between the Big Creek and Damon Mound Pools.

At Boling Dome in Wharton County, the Gulf Production Co.'s No. 3 Felder is drilling at 1,355 feet with No. 2 McCloud rigging. The salt was found last year, but thus far no production has been developed.

A Big Hill in Jefferson County, an old dome around which much exploration work has been done, the Houston Oil Co. abandoned No. 1 Gulf-Pipkin at 3,007 feet and is drilling No. 1 Sun-Pipkin at 3,335 feet. It is rigging No. 5 Staiti. The Paggi Oil Co. has rigged No. 1 Wilson, south of China, in that county.

In Matagorda County, where both the seismograph and torsional balance have been used, the Marland Oil & Refining Co. is drilling No. 1 Dwyer around 4,100 feet and started No. 1 Hawkins. Crossland and others' No. 1 Hawkins is also starting as an offset to Marland's No. 1 Hawkins. In the Markham Pool in that county, the Rycade Petroleum Corp.'s No. 1 Gray is sidetracking at 3,250 feet and No. 2 Gray is drilling at 1,785 feet.

In Harris County, the Trinity Copper Co.'s No. 1 near Westfield, is idle, as is Wright and others' on Cedar Bayou. The Kane Production Co. is drilling a formation test 6 miles east of Humble on the San Jacinto River. Rucker and associates are starting east of Goose Creek, near Cedar Bayou.

In Chambers County, S. J. Hindman is drilling No. 1 Collier on the southeast side of the Barber Hill Dome.

More Completions

In the Spindletop Pool, the Gulf Production Co.'s No. 210 Gladys is pumping 50 bbls. at 890 feet and Wilson and Broach's No. 10 Fort Worth is a 10-bbl. well at 750 feet. The Williams Oil Co.'s No. 1 Gladys is drilling.

In the Batson Pool, the Paraffine Oil Co.'s No. 59 fee is pumping 15 bbls. at 700 feet. Anderson and Munson's No. 3 Hodges is bailing at 3,115 feet. The Gulf Co. is deepening No. 158 Wing. Cavitt and others' No. 2 King is deepening. The Ada Belle Oil Co.'s No. 82 Wise is drilling. The East Batson Oil Co. has started No. 2 Texas.

At Big Creek The Texas Co.'s No. 1 Fee is idle at 3,210 feet. The Gulf Production Co.'s No. 16 Davis is below 3,000 feet with No. 17 rigging. A derrick is standing for No. 9 Wheat.

In the Saratoga Pool, the Rio Bravo Oil Co. has rigged for No. 3 Bryant. The Cotton Oil Co. is drilling No. 5 Gulf and the Sun Oil Co. No. 58 Texas Crude lease.

The Dixie Oil Co.'s test in Bastrop County, 25 miles northeast of Luling, is showing for a well at 2,100 feet. It bailed some light gravity oil in hard lime. The producing in the Luling Field is from a porous lime at about the same depth. Hole is standing with 1,000 feet of fluid in it. The Cardinal Oil Co.'s No. 1 Ott, southwest of Rosandry plugged back to 2,300 feet from 2,600 feet and will test a showing, passed up, M. A. Currie is rigging a test south of Smithville.

At High Island in Galveston County, the Sun Oil Co. is setting 8¼-inch in No. 2 Brossard at 2,100 feet. In the shallow cap rock section the Green Oil Co. set surface casing and shut down.

In Bexar County, the Buckeye Oil Co.'s No. 1, south of San Antonio, is showing gas at 1,650 feet. The Humble Oil & Refining Co. has a location for No. 1 Berg Hill, south of San Antonio. F. B. LeFevre has a location for a test north of Dale. Ballard & Underwood's No. 1 Hopkins, a deep test in the Somerset district, was abandoned at 3,000 feet and a location made for No. 2. Rutledge and others are starting No. 1 Kaufman, south of Somerset. The Dixie Oil Co. is drilling No. 1, north of Adkins at 1,735 feet.

Down in Zavalla County, Hadley and Harmon's No. 1 Pryor is at 3,000 feet drilling in lime.

John E. Lee is starting a deep test, 4 miles north of Rockdale, Milam County, on the Isaacs lands.

In Guadalupe County, Ross and Green's No. 1 Pryor is said to show some oil in the chalk at 1,665 feet. Burnman and others' No. 1 Battles near Kingsbury, is showing gas at 2,130 feet.

In Brazoria County, the Freeport Sulphur Co.'s No. 1 McNeel is showing gas at 3,125 feet.

In the new district, near Lockport, La., the Vacuum Oil Co.'s No. 1 Bordages is drilling below 3,945 feet in lime and gumbo. No. 1 Farquahar is reaming at 2,155 feet. No. 1 Gray will test at 3,126 feet, after drilling to 5,235 feet and getting nothing.

Kansas Oil Field News

By C. D. Lockwood

The discovery of a new pool in Butler County, Kansas, by the Hoyt Oil Co., 3 miles south and east of Whitewater, and 2 miles from the nearest proven area, and the extension of the Russell Pool in Russell County, a quarter mile north with the completion of Stearns, Streeter & Yankey's No. 2 Oswald, NE cor. SW SW, Section 8-12-15w, were the principal events of interest in Kansas during the past week.

The Russell County well is located in the NE cor. SW SW, Section 8-12-15w, and reached the pay horizon at 2,938 feet; from a total depth of 2,988 feet was swabbing 18 bbls. an hour. The pay sand was found about 9 feet higher than in the discovery well, a quarter of a mile south. It is the farthest north and east well in the Russell Field.

The Hoyt Oil Co.'s No. 1 Harder, SE cor. Section 21-24-3, Russell County, topped sand at 2,464 feet, and at 2,467 feet had 700 feet of oil in the hole; a 5-inch perforated string was being set.

Cowley County Operations

The Kanotex Refining Co.'s No. 2 Goff, NE cor. SE SW, Section 17-34-4, shut in 100,000 feet of gas at 642-57 feet.

New operations in Cowley County include C. W. Titus' No. 4 Elliott, SW cor. NE SE, Section 31-30-6, rig up; Lewis Oil Co.'s No. 4 Elliott, SE cor. NW SE, Section 31-30-6, rig up; Trees Oil Co.'s No. 1 Estes, SE cor. SW NW, Section 12-32-6, rig on ground; Marland Oil Co.'s No. 1 Nevitt, C NE SW NW, Section 30-32-3, drilling at 340 feet; same owners' No. 1 Orr, C SW SE SE, Section 3-33-3, rig up; same owners' No. 3 Wright, C NE NW NW, Section 10-33-3, spudding in; same owners' No. 2 Bower, C NW SW NW, Section 10-33-3, rig up; Roxana Petroleum Corp.'s No. 2 Spruens, C SW NW SW, Section 10-33-3, rig up; Waite Phillips Co. and others' No. 1-A True, C NE NE NW, Section 29-33-3, spudding in; J. A. Hull Co.'s No. 8-A Delfelder, NW cor. NW SE, Section 24-32-4, spudding in; Wentz Oil Corp.'s No. 1 Watts, SW cor. NE SE, Section 17-33-3, spudding in; A. D. Morton's No. 1 DeBard, SW cor. SW NE, Section 35-34-3, timbers; Kanotex Refining Co.'s No. 1, NE cor. SW NW, Section 32-34-4, rigging up a machine.

Nathan & Brinn's No. 2 Jarvis, C NW SE NW, Section 20-34-4, was completed with 375,000 feet of gas shut in sand at 659-71 feet.

Greenwood County

The Phillips Petroleum Co.'s No. 2 Cravett, C NE SW SW, Section 22-22-11, was dry and abandoned at 2,070 feet.

The Skelly Oil Co.'s No. 4 Teeter, C NW NW SW, Section 15-23-9, was spudded in and shut down. Reverly and others' No. 1 Hartley, SW cor. SW NE, Section 2-23-9, was also spudded in and shut down.

The Mid-Kansas Oil & Gas Co.'s No. 10 Ladd, CSL NW NE, Section 19-25-9, was swabbing 200 bbls. from sand at 2,384-2,439 feet after a 120-quart shot.

McGinnis & Bilter's No. 2 Teeter, C NW SE NW, Section 15-23-9, had 1,000,000 feet of gas from sand at 2,295-2,305 feet, and a 200-bbl. showing from 2,305-60 feet. The owners now are fishing for tools at 2,360 feet.

The Phillips Petroleum Co.'s No. 4 Teeter, C NW SW NW, Section 15-23-9, found sand at 2,278 feet, oil at 2,295 feet, and reached the bottom of the sand at 2,369 feet. The well was shot with 110 quarts, which resulted in a bridged hole and an estimated production of 200 bbls.

The Beacon Oil Co.'s No. 1 Wershing was completed at 2,132 feet in sand topped at 2,128 feet. The well was making 170 bbls.

Elk County

Anderson & Anderson's No. 1, C SW NE SE, Section 21-31-9, Elk County, was making 60 bbls. from sand at 2,291-2,302 feet.

Sumner County

The Howarth Oil & Gas Co. had two dry holes in Sumner County, No. 1 Hasserbrock, SW cor. SE NE, Section 15-35-1, at 2,575 feet, and No. 1 Ryman, SW cor. SW SE, Section 15-35-1, at 2,640 feet.

The Cosden Oil & Gas Co. was building a rig for No. 1 Shade, C NW NW SE, Section 16-31-2.

THREE INCHES CORRECT

In the advertisement of the Bovaird Supply Co., appearing in the December 18 issue of The Oil and Gas Journal, in referring to the Bovaird Grip Tubing Spider, a mistake was made in the size of the slips. The advertisement should have read, "One spider with three set slips—2", 2½" & 3", will handle any tubing job." The advertisement as published gave the slips of two, two and one-half and three and one-half inches, instead of three inches, which is correct.

MADE CHIEF GEOLOGIST

WICHITA, Kans., Dec. 27.—Chesley G. Gish has resigned as chief geologist for the White Eagle Oil & Refining Co. of Wichita, to accept a position of chief geologist for the Sinclair Oil & Gas Co., with headquarters at Tulsa.

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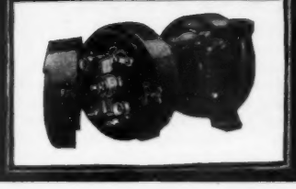

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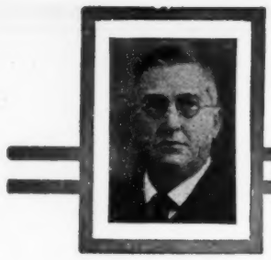


North-Central Texas Field

By Dan F. Dugan

Weather and holidays cause greatest shut down in several years. No new production in Wichita, Young or Eastland Counties, Archer and Wilbarger furnishing practically all. Murchison and others' No. 1 Gambrell flowing 400 bbls., may connect Carey Pool in South Archer County with the Harmel Pool.

FORT WORTH, Tex., Dec. 29.—The week just closed has been one of the most disagreeable, from the standpoint of weather, ever experienced in the North Central Texas territory. With the temperature hovering near zero in the Wichita and Archer districts and below that point in the Panhandle it is not surprising reports show more wells shut down than at any time in several years.

In the Panhandle territory the weather grew so severe very few wells continued and a very large percentage of the drilling operations in Eastland, Stephens, Young, Archer and Wichita Counties are also shut down. This unfavorable weather combined with the holidays is responsible for a considerable falling off in completions, a marked shortening of the drilling report and may possibly be responsible for the small decline in the daily production.

There was a decline in production this week amounting to 50 bbls. None of the districts showed any particularly heavy losses. Production this week totals 134,690 bbls. compared with a total last week of 134,740 bbls. Electra lost 25 bbls. in daily average runs, while Stephens County reported a loss of 200 bbls. and the wildcat districts suffered a decline of 520 bbls. daily. Burkburnett gained 380 bbls. over the previous week. Iowa Park, including Archer County, showed a gain of only 310 bbls. over the runs for the week before and Eastland County accounted for a gain of 5 bbls.

Nowhere in the territory were there any large completions that might have added new production to offset the natural declines. Of course, Archer County had a number of good new producers but there was not a barrel of new production in either Wichita, Young or Eastland Counties and there was only 85 bbls. of new production in Stephens County. Archer and Wilbarger Counties accounted for practically every bit of new production during the week.

Completions during the week totaled 53, compared with 65 for the previous week. Of the 53 new completions, only 31 were oil producers, 20 being dry holes and two gas wells. Last week there were 38 oil producers, 26 dry holes and 1 gas well.

New Production

New production this week totaled 3,940 bbls. from 31 producing wells against 6,210 bbls. last week from 38 new producers. Archer County had 26 completion with 23 oil wells and only three dry holes, compared with 35 completions last week with 23 producers and 12 dry holes. Wichita County made a very poor showing, accounting for only two completions, both dry holes. Young County also made a poor showing, reporting five completions, all dry, while Eastland County reported not a single completion. Stephens County had eight completions, three producers, one gas well and four dry holes. The wildcat fields reported a total of 12 completions, 5 producers, 1 gas well and 6 dry holes.

New production in Archer County was 3,225 bbls., while Stephens County had 85 bbls. and 10,000,000 feet of gas. The wildcat pools accounted for 630 bbls. new production and 500,000 feet of gas.

One of the most important developments of the week in the south Archer and north Young territory was the bringing in of a well, not yet listed as a completion but which is showing for a producer and is reported flowing about 400 bbls. daily. This is Murchison and others' No. 1 Gambrell, 4 miles northwest of the town of Olney in Young County. It now serves as a sort of connecting link between what is generally known as the Carey Pool in south Archer and the Harmel Pool. The well got sand at 1,185 feet and was drilled to a total depth of 1,210 feet. The well opens up considerable new territory for immediate development.

Two very important wells are showing up also in the south Vernon Pool of Wilbarger County. One, now listed as a completion is the Humble Oil & Refining Co.'s No. 1 Castlebury which extends the field a quarter of a mile to the east. It was completed at 1,325 feet and is making 480 bbls. Another outside well, not yet completed is McCamey and others' No. 1 Stephens, more than a third of a mile to the southeast of any production. It is producing from sand at 1,740 feet and is reported flowing and swabbing about 150 bbls.

In Baylor County, the Magnolia Petroleum Co. is reported to have encountered an oil sand at 1,405 feet in its wildcat, No. 1 Portwood. The sand will be tested as soon as weather conditions permit.

Wichita County Completions

Leath-McCarty Oil Co.'s No. 1 Kemp, dry at 2,035 feet; O'Neil and others' No. 1 Doneghy, dry at 1,930 feet.

Archer County

Carter and others' No. 3-A White, 75 bbls. at 1,610 feet; Comet Petroleum Co.'s No. 3 White, dry at 1,610 feet; Humble Oil & Refining Co.'s No. 1 Oil Investment Co., 80 bbls. at 1,195 feet; Jetter and others' No. 2 White, dry at 1,670 feet; Lincoln and others' No. 2 Oil Investment Co., 35 bbls. at 1,110 feet; Magnolia Petroleum Co.'s No. 9 Parrish, 85 bbls. at 1,595 feet; Oil Investment Co.'s No. 3 fee, 45 bbls. at 1,110 feet; Phillips and others' No. 4 Wilson, 155 bbls. at 1,515 feet; Robertson and others' No. 6 White, 170 bbls. at 1,595 feet; same company's No. 15 White, 45 bbls. at 1,610 feet; same company's No. 16 White, 150 bbls. at 1,610 feet; Sims Oil Co.'s No. 4 Parrish, 125 bbls. at 1,595 feet; Staley and others' No. 4 K. & K., 25 bbls. at 1,775 feet; Consolidated Oil Co.'s No. 6-A Davis, dry at 1,105 feet; same company's No. 2-B Davis, estimated 40 bbls. at 1,080 feet; same company's No. 8-B Ragle, 60 bbls. at 1,095 feet; same company's No. 4-C Ragle, 60 bbls. at 1,080 feet; Cullum and others' No. 5 Bridwell, 40 bbls. at 1,145 feet; same company's No. 1 Rogers, estimated 150 bbls. at 1,375 feet; Green and others' No. 3 Ambercrombie, 50 bbls. at 1,400 feet; Gwynn and others' No. 3 Rogers, 160 bbls. at 1,270 feet; same company's No. 2 Wood, 125 bbls. at 1,300 feet; Murchison and others' No. 4-C Harmel, 175 bbls. at 1,275 feet; Mutual Oil Co.'s No. 2 Harmel, estimated 100 bbls. at 1,270 feet; same company's No. 3 Harmel, 110 bbls. at 1,275 feet.

Ray and others' No. 6 Hausler, 250 bbls. at 1,125 feet; same company's No. 7 Hausler, 475 bbls. at 1,125 feet; same company's No. 8 Hausler, estimated 150 bbls. at 1,120 feet; Roxana Petroleum Corp.'s No. 1 Kunkel, 400 bbls. at 1,130 feet; Swastika Oil Co.'s No. 2 Neal, 100 bbls. at 1,095 feet; Texhoma Oil & Refining Co.'s No. 9 Hausler, 110 bbls. at 1,155 feet same company's No. 10 Hausler, 240 bbls. at 1,135 feet.

Young County

Burton and others' No. 1 Campbell, dry at 1,315 feet; Consolidated Oil Co.'s No. 1 Bearden, dry at 1,410 feet; Harris and others' No. 1 Andrews, dry at 1,505 feet; Knight and others' No. 1 Logan, dry at 1,500 feet; Sims and others' No. 1 Carpenter, estimated 100 bbls. at 1,025 feet; Union Oil Co.'s No. 1 Keathley, dry at 3,465 feet.

Stephens County

Mid-Kansas Oil & Gas Co.'s No. 2 Williams, Acct. 2, 40 bbls. at 3,300 feet; Pierce and others' No. 1 Crudington, dry at 3,645 feet; Snowden & McSweeney's No. 1 Ackers, Acct. 1, 10 bbls. at 3,040 feet; Texas Consolidated Oil Co.'s No. 2 Martin, dry at 3,880 feet; Carter and others' No. 1 Jennings, dry at 3,760 feet; same company's No. 1 T. & P. Railway, dry at 3,820 feet; Kleinfelder and others' No. 1 Grimes, 10,000,000 feet of gas at 3,225 feet; The Texas Co.'s No. 10 Curry, 5,000,000 feet of gas at 3,295 feet.

Wildcat Completions

Wilbarger County: Bridwell and others' No. 5 Stephens, 210 bbls. at 1,830 feet; Kolp and others' No. 1 Waggoner, 165 bbls. at 2,025 feet; Ray and others' No. 2 Bond, 125 bbls. at 2,020 feet; Humble Oil & Refining Co.'s No. 1 Castlebury, 480 bbls. at 1,325 feet; McCamey and others' No. 1 Stephens, 150 bbls. at 1,740 feet, not yet completed; South Vernon Oil Co.'s No. 5 Stephens, 300 bbls. at 1,980 feet, not yet completed.

Baylor County: Moore and others' No. 1 Fancher, dry at 980 feet.

Clay County: Cumley and others' No. 1 Camp, dry at 1,815 feet; Sullivan and others' No. 3 Scott & Ramsdell, dry at 415 feet.

Palo Pinto County: Hall and others' No. 1 Chenault, dry at 625 feet; Moore and others' No. 1 Stuart, dry at 1,805 feet.

Mitchell County: Morrison and others' No. 1 Keynard, 100 bbls. at 3,045 feet; California Co.'s No. 7 Abrams, 30 bbls. at 3,030 feet.

Brown County: Moore and others' No. 1 Williams, 500,000 feet of gas at 1,215 feet.

Concho County: Dome Production Co.'s No. 1 Hartgrove, dry at 1,430 feet.

Drilling Operations

Wichita County: Magnolia Petroleum Co.'s No. 108 Reilly, cleaning out at 1,265 feet; same company's No. 109 Reilly, drilling at 250 feet; same company's No. 41 Beach, drilling at 860 feet; Ascot company's No. 26 Roller, drilling in shale at 1,875 feet; Drillers Development Co.'s No. 6 Douglas, drilling at 850 feet; Kruger and others' No. 10 Allen & Kemp, drilling in rock at 600 feet; Petroleum Production Co.'s No. 2 Allen & Kemp, drilling in shale at 1,465 feet; Wichtex Oil Co.'s No. 1 McFall, drilling at 1,150 feet.

Archer County

Archer Oil Co.'s No. 1 Dowlen, drilling at 1,260 feet; Camp Oil & Gas Co.'s No. 1 Hughes, drilling in rock at 400 feet; Graham and others' No. 6-B Wilson, has oil showing at 1,575 feet; Humble Oil & Refining Co.'s No. 2 Oil Investment Co., underreaming; Magnolia Petroleum Co.'s No. 10 Parrish, drilling at 1,230 feet; Norton and others' No. 1 Andrews, underreaming; Pace and others' No. 1 Nichols, drilling at 950 feet; Riner and others' No. 4-A Wilson, drilling at 1,250 feet; Robertson and others' No. 7 White, underreaming; same company's No. 1-B White, drilling at 800 feet; Texhoma Oil & Refining Co.'s No. 1 Wilson, oil showing at 1,200 feet; Underwood Drilling Co.'s No. 1 Wilson, drilling at 1,185 feet; Verschoyle and others' No. 8-B Wilson, drilling at 1,145 feet; Bridwell and others' No. 1 Giddings, drilling at 1,390 feet; Burns and others' No. 1 Kunkle, drilling at 1,345 feet; Carey and others' No. 2 Logan, drilling in lime at 1,270 feet; Clopton and others' No. 1 Harris, drilling at 1,395 feet; Hobbs and others' No. 1 Lane, oil showing at 1,449 feet; same company's No. 2 Lane, spudding; Maxwell and others' No. 1 Haralson, drilling at 1,170 feet; McNamara Brothers' No. 1 Justice, spudding; Richardson Brothers' No. 1 Boone, drilling at 1,160 feet; Sun Oil Co.'s No. 6 Farmer, drilling at 1,565 feet; same company's No. 7 Farmer, underreaming; Christie Brothers' No. 1 Campbell, drilling in rock at 450 feet; Clark and others' No. 2 Cowan, drilling at 820 feet; Consolidated Oil Co.'s No. 6 Bearden, drilling at 1,060 feet; same company's No. 7-A Davis, oil showing at 1,182 feet; same company's No. 2-B Davis, oil showing at 1,080 feet; same company's No. 8-B Ragle, oil showing at 1,090 feet; same company's No. 4-C Ragle, oil showing at 1,080 feet; Crosslin and others' No. 1 Garvey, drilling at 100 feet; Gwynn and others' No. 1-B Rogers, drilling at 500 feet; same company's No. 5 Rogers, drilling in rock at 580 feet; same company's No. 3 Wood, drilling at 580 feet; Harris and others' No. 1 Brown, drilling at 620 feet; Humble Oil & Refining Co.'s No. 3 Ragle, drilling at 1,025 feet; Jeffers and others' No. 2 Andrews, drilling at 600 feet; Litchfield and others' No. 1 Young, drilling at 350 feet; Midway Development Co.'s No. 1 Morrison, drilling at 680 feet; Murchison and others' No. 5-B Harmel, setting casing at 1,250 feet; same company's No. 5-C Harmel, drilling at 1,120 feet; same company's No. 8 Griffin, drilling at 1,140 feet; same company's No. 9 Griffin, drilling at 1,250 feet; same company's No. 10 Griffin, drilling at 895 feet same company's No. 11 Griffin, drilling at 1,005 feet; same company's No. 4 Wood, drilling at 1,010 feet; same company's No. 5 Wood, drilling at 620 feet; same company's No. 6 Wood, drilling at 710 feet; Muse and others' No. 4 Harmel, drilling in rock at 400 feet; Petroleum Production Co.'s No. 3 Bridwell, drilling at 1,020 feet; same company's No. 1 Hausler, drilling at 1,000 feet; same company's No. 2 Hausler, drilling at 750 feet; Ray and others' No. 9 Hausler, drilling at 1,020 feet; Shamrock Oil Co.'s No. 5-C Richardson, drilling at 500 feet; same company's No. 17 Goldsmith, setting casing at 1,325 feet; same company's No. 19 Goldsmith, drilling at 780 feet; Southern Exploration Co.'s No. 1 Kinder, drilling at 1,160 feet; Sun Oil Co.'s No. 4 Green, drilling at 840 feet; The Texas Co.'s No. 3 Jeske, drilling in at 1,130 feet; Texhoma Oil & Refining Co.'s No. 11 Hausler, drilling at 750 feet.

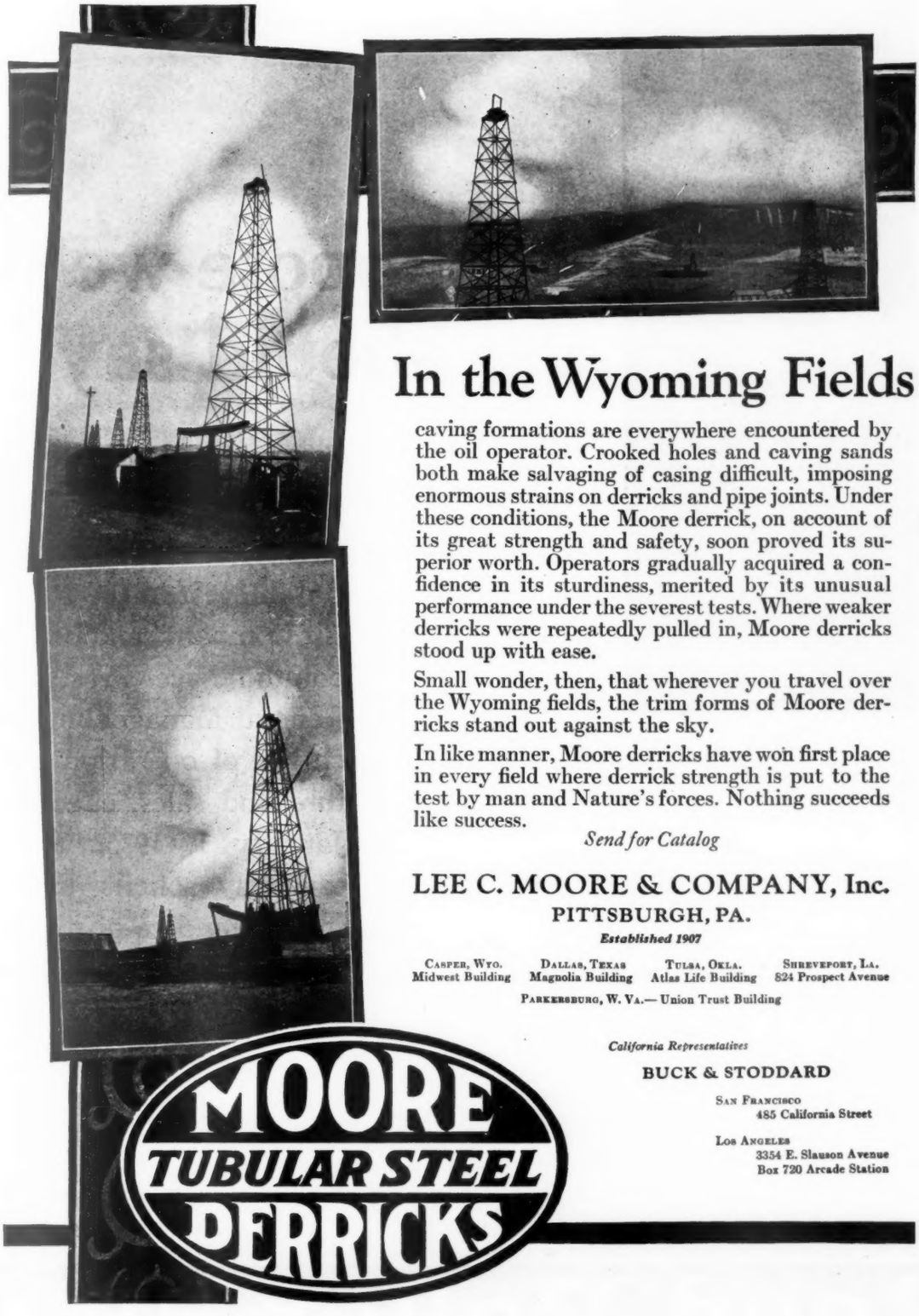
Young County

Applegate and others' No. 1 Zimmerman, drilling at 1,320 feet; Cheney and others' No. 1 Harrison, drilling at 3,000 feet; Christie Brothers' No. 3 McLaren, drilling at 2,340 feet; Dunn and others' No. 1 Craig, fishing at 500 feet; Jones and others' No. 1 Marshall, drilling at 670 feet; Miller and others' No. 1 Hume, drilling in lime at 4,160 feet; Staley and others' No. 1 Thomas, bailing at 1,025 feet; Sims Oil Co.'s No. 2 Carpenter, drilling at 620 feet; Vance and others' No. 1 Daws, fishing at 3,025 feet.

Stephens County

Critten and others' No. 8 Cobb, drilling at 1,800 feet; Interstate Consolidated Co.'s No. 1 Lane, drilling at 1,000 feet; Mid-Kansas Oil & Gas Co.'s No. 15 Hill,

(Continued on Page 90)



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HOUSTON, TEXAS

North Louisiana-Arkansas

By M. L. Vaughn

Lack of drilling activity reflected in 6,620 bbls. decline. Hunt and others' No. 1 Green, making 150 bbls., extends Louann district three-quarters mile. The Texas Co.'s No. 1 McAdoo, west of Norphlet, arouses interest. Twenty-five rigs in Waskom gas territory. Cotton Valley production drops 838 bbls.

SHREVEPORT, La., Dec. 29.—A big drop in production last week evidences the lack of drilling activity throughout the field, particularly in the Smackover district in Union and Ouachita Counties, Arkansas. The decline in production amounted to 6,620 bbls. a day, the Arkansas field falling off 4,701 bbls. and North Louisiana 1,919 bbls. Production of the combined fields averaged 155,421 bbls. a day, distributed as follows:

North Louisiana	
Bellevue	4,086
Caddo light	9,485
Caddo heavy	2,220
Cotton Valley	5,840
De Soto and Red River	4,535
Elm Grove	550
Haynesville	15,585
Homer	7,045
Total	49,346
South Arkansas	
El Dorado	10,460
Nevada County	1,120
Smackover light	28,490
Smackover heavy	63,835
Stephens	2,170
Total	106,075
Total both fields	155,421
Decrease	6,620

There is a noticeable increase in drilling activity in the Arkansas field, particularly in the Louann district, where recent extensions of the pool have opened up considerable new territory. The completion of Hunt and others' No. 1 Green on the northwest corner of the southeast quarter of Section 23-15-17, Ouachita County, has started a drilling campaign centering around the south half of Section 23. This well came in flowing 150 bbls. a day and extends the Louann district three-quarters of a mile to the northwest. Hunt also completed No. 1 Hyatt in the southeast corner of Section 22-15-17 with an initial production of 40 bbls., extending the field still farther west.

The most interesting event of the week in Union County, Arkansas, was the completion by The Texas Co. of No. 1 McAdoo in the northeast corner of the southwest quarter of the southeast quarter of Section 15-16-16, about 4½ miles west of Norphlet. This well was drilled to 2,601 feet and bailed, and while bailing the oil stood up 200 feet in the hole with about the same amount of water. The well is now being put on the pump and is being watched closely by the oil fraternity to see what it will do.

The new gas field at Waskom, Tex., extending over into the south end of Caddo Parish, continues in the limelight and there are now about 25 rigs running in this district. The most interesting completion of the week was the Proven Production Co.'s No. 1 Abney, in the T. D. Wilson Headright survey, about 2½ miles southwest of Waskom. When started this well was to be drilled to the shallow sand at about 960 feet, but they went on down to 1,014 feet where they tested and got 1,000,000 feet of gas with a spray of salt water. Then they decided to make a deep test and drilled to 1,952 feet where they got a 20,000,000-foot gasser. This well is one of the best yet completed in the deep sand in the Waskom Field.

Completions

Completions in the Union County area of the Smackover Field during the week numbered 14, of which 9 were old wells which had been standing idle for some time and were finally abandoned, and 5 were producers, having an aggregate initial production of 245 bbls.

H. E. Clark completed No. 2 Neely, Section 1-16-17, pumping 30 bbls. at 2,259 feet.

Estes and others abandoned No. 3 Freeman, Section 1-16-17, at 2,276 feet.

Freeman and others abandoned No. 1 Burton, Section 25-16-16, at 2,137 feet.

W. H. Gilliland completed Hodges A-1, Section 6-16-16, pumping 75 bbls. at 2,266 feet.

J. D. Johnson, trustee, abandoned No. 1 Ford, Section 17-17-15, at 2,152 feet.

The Magnolia Petroleum Co. completed No. 2 Goodwin-Campbell, Section 13-16-17, pumping 70 bbls. at 2,370 feet, and No. 1 Smith, Section 2-16-17, pumping 20 bbls. at 2,258 feet.

Myerscough and others completed No. 3 Smith, Section 29-17-14, pumping 50 bbls. at 2,184 feet.

Montgomery and others abandoned No. 1 Roberts, Section 10-19-15, at 2,162 feet.

The Ohio Oil Co. abandoned No. 1 Pate, Section 10-16-15, at 2,012 feet.

The Plateau Oil Co. has abandoned No. 1 Tatum, Section 7-16-16, at 2,270 feet.

Ray and others have abandoned No. 1 Long, Section 23-16-15, at 2,206 feet.

Steele and others abandoned No. 3 Hodges, Section 12-16-17, at 625 feet.

Wall and others abandoned No. 1 Johnson, Section 1-16-17, at 327 feet.

Ouachita County

Completions in Ouachita County numbered seven, all producers, with an aggregate initial production of 685 bbls.

Ellis & Dumas completed No. 1 Forest City Box Co., Section 31-15-16, pumping 90 bbls. at 2,263 feet.

The Forest Oil Co.'s No. 2 J. A. Cramer, Section 27-15-16, made a 125-bbl. pumper at 2,356 feet.

Hildreth and others completed No. 1 Mullins, Section 27-15-16, pumping 60 bbls. at 2,309 feet.

Hunt and others completed Anderson B-6, Section 23-16-17, flowing 225 bbls. at 2,291 feet.

The Magnolia Petroleum Co. completed No. 3 Brown, Section 26-15-17, pumping 80 bbls. at 2,317 feet.

Riggs and others completed No. 1 Green, Section 23-15-17, making a 55-bbl. pumper at 2,365 feet.

Winner and others completed No. 1 School House, Section 20-15-16, pumping 50 bbls. at 2,327 feet.

Cotton Valley

The Humble Oil & Refining Co. completed Bodcau B-4, Section 24-21-10, pumping 150 bbls. at 2,522 feet, and Bodcau B-6, Section 26-21-10, making 10,000,000 feet of gas and 60 bbls. of oil.

The Louisiana Oil Refining Corp. completed No. 2 Nelson, Section 26-21-10, making 15,000,000 feet of gas and a spray of oil at 2,556 feet.

Bossier Parish

The Palmer Corp. completed Hodges B-6, Section 25-16-12, making 23,000,000 feet of gas at 1,872 feet.

Claiborne Parish

Woodley & Collins got salt water at 3,016 feet in No. 1 Fortson, Section 26-21-5, and the test has been abandoned.

Morehouse Parish

The Natural Gas Producing Co. completed No. 4 Tensas, Section 3-21-4, making 5,500,000 feet of gas at 2,200 feet.

Nevada County, Arkansas

The Southern Oil Co. tested dry at 1,385 feet in No. 1 Moss, Section 7-14-20, and the test has been abandoned.

Drilling Operations

Union County, Arkansas

The Arkado Oil Co. is drilling at 2,150 feet in No. 5 Hatfield, Section 7-16-15; Arkansas Fuel Oil Co. deepened No. 5 LaGrone, Section 1-16-17, with cable tools, and is testing at 2,268 feet, and British Allied Estate is drilling at 950 feet in No. 2 Jones, Section 21-16-15.

Cherokee Petroleum Co. is arranging to Pump No. 7 Burton, Section 25-16-16; J. W. Clark is cleaning out No. 1 Palmer, Section 9-16-15, with cable tools, at 2,100 feet, and Crawford & Sebastian have 1,000 feet of fluid in the hole in No. 3 Giller, Section 14-16-15, and swabbing at 1,995 feet.

W. A. Dillmeyer, trustee, is rigging up to drill No. 1 Ezell, Section 13-17-15, and Doorn and others are rigging up to drill No. 1 Bradley, Section 4-19-16.

The Federal Petroleum Co. is drilling at 2,932 feet in No. 1 Childs, Section 8-16-16; Gulf Refining Co. is drilling at 950 feet in No. 10 M. Alphin, Section 2-16-15, set 4-inch at 2,615 feet in No. 18 L. Werner, Section 5-16-16; 10-inch at 85 feet in No. 24 L. Werner, Section 6-16-16, drilling at 150 feet in No. 27 L. Werner and has made location for No. 28, Section 6-16-16.

Howell and others set 6-inch casing at 1,875 feet in No. 1 Williams, Section 3-16-15; Houston Oil Co., drilling at 2,040 feet in No. 3 Hinton, Section 5-16-15, an old well being drilled deeper, and E. N. Jones, drilling at 3,400 feet in No. 1 Murphy, Section 26-16-16.

W. W. Jones and others are rigging up to drill No. 1 F. G. Murphy, Section 18-16-15, and Keene & Woolf have derrick up for No. 1 J. S. Murphy, Section 5-16-15; Liberty Oil Co., drilling at 1,950 feet in No. 1 Davis, Section 31-16-14, and Lion Oil & Refining Co., drilling at 2,395 feet in No. 4 Allgulf, Section 17-16-15, and at 1,130 feet in No. 6 Graves, Section 3-16-15.

Magnolia Petroleum Co., drilling at 1,900 feet in No. 3 Harris, Section 16-16-16, and at 500 feet in No. 1 N. J. Scott, Section 12-16-17; Matthews and others, drilling at 1,400 feet in No. 1 Teele, Section 11-19-12.

Natural Gas & Petroleum Co. is arranging to drill deeper in No. 3 Frazier, Section 1-18-16, now down 2,550 feet, and building derrick for No. 5 Murphy, Section 8-16-15.

P. F. O'Brien is drilling in chalk rock at 2,155 feet in No. 1 fee, Section 13-19-17; Penguin Oil Co. is arranging to pump No. 3 Berry, Section 18-16-15; Pure Oil Co., drilling 6-inch plug at 2,030 feet in No. 1 C. Hicks, Section 20-16-15, and shut off water and taking a core barrel at 2,050 feet in No. 1 Lawton, Section 30-16-15.

Rogers and others are recementing 6-inch casing at 1,938 feet in No. 2 LeCroy, 1-16-17; Simms Oil Co., drilling plug in Section 17-16-15; Rutledge, trustee, drilling at 500 feet in No. 4 Hodges, Section 4½-inch casing at 2,640 feet in No. 1 Laney heirs, Section 8-16-16.

Standard Oil Co. has 150 feet of oil in the hole at 1,970 feet in No. 15 J. H. Alphin, Section 11-16-15, and arranging to pump; Sunny Jim Oil Co. has 300 feet of oil in the hole and arranging to pump No. 2 Flenniken, at 2,080 feet; arranging to drill No. 1 deeper in Section 9-16-15; Sutherland and others have 1,200 fet of oil in the hole and arranging to pump No. 4 Neely, Section 1-16-17.

The Texas Co. is arranging to pump No. 1 McAdoo, Section 15-16-16; Wabler and others, drilling at 1,750 feet in No. 1 Williams, Section 36-17-14; Weatherbee and others set 10-inch casing at 435 feet in No. 3 Rice, Section 6-16-16, and Nye Wilson is drilling plug in 6-inch at 1,900 feet in No. 4 Hays, Section 4-16-15.

Ouachita County

Arkansas Drilling Co. is drilling at 450 feet in No. 1 Reynolds, Section 24-15-17; Bray-Hawthorne at 2,050 feet in No. 1 Goodwin, Section 12-15-17, and British Allied Estate at 500 feet in No. 1 Lampkin fee, Section 6-13-18.

H. E. Clark is bailing casing at 2,355 feet in No. 2 Smith, Section 26-15-17, and drilling at 2,110 feet in No. 2 Yarbrough, same section; Boger and others are setting 6-inch casing at 1,920 feet in No. 2 Minor, Section 20-15-16; Cumberland Petroleum Co. set 6-inch at 2,240 feet in No. 1 Raynolds and drilling at 2,000 feet in No. 2, Section 23-15-17.

Duho Oil Co. is arranging to pump No. 4 McKenzie, Section 36-15-16; Ellis & Dumas are drilling at 2,200 feet in No. 2 Forest City Box Co., Section 31-15-16; Empire Gas & Fuel Co. is building derrick for No. 4 Bradley, Section 30-15-15.

Forest Oil Co. is drilling at 850 feet in No. 17 Cramer, Section 27-15-16, and at 1,600 feet in No. 3 C. Minor, Section 20-15-16; Galloway and others have 1,500 feet of oil in the hole at 2,275 feet and arranging to pump No. 2 Hughes, Section 28-15-16; Gilliland Oil Co. has 1,600 feet of fluid in the hole and aranging to pump W. A. Smith No. 4, Section 36-15-17, at 2,260 feet.

Gulf Refining Co. set 6-inch casing at 2,250 feet in No. 1 Reynolds, Section 23-15-17, drilling at 1,500 feet in Werner A-7, Section 26-15-17, and set 6-inch casing at 1,875 feet in No. 2 Henry Murphy, Section 2-16-15.

Hazen and others set 6-inch casing at 2,225 feet in No. 1 Fincher, Section 29-15-16; Hunt and others, drilling at 600 feet in Anderson B-7, Section 23-15-17, at 1,500 feet in Green B-5, and rigging up to drill No. 1 and No. 2 Hatton, Section 23-15-17; J. N. Jones and others are drilling at 1,800 feet in No. 2 Ferris, Section 34-15-15.

Kourey and others have derrick up for No. 1 Churchyard, Section 28-15-15; Magnolia Petroleum Co. set 6-inch casing at 2,200 feet in No. 10 Smith, Section 31-15-16; Marine Oil Co. set 8-inch casing at 1,915 feet in No. 3 Hays, Section 4-16-15.

Marr Oil Corp. is arranging to test 3 feet of sand at 2,285 feet in No. 4 Mullins, Section 28-15-16; Mazda Oil Co. set 6-inch casing at 1,950 feet in No. 1 Berry, Section 33-15-15; Reynolds & Thompson are drilling at 2,080 feet in No. 1 S. A. Graves, Section 16-14-18.

Riggs and others are rigging up to drill No. 3 Graves in Section 23-15-17; Ross and others are arranging to pump No. 1 Stringfellow, Section 28-15-16, and H. A. Shmuller is testing 10 feet of sand at 2,305 feet in No. 1 Wells, Section 25-15-17.

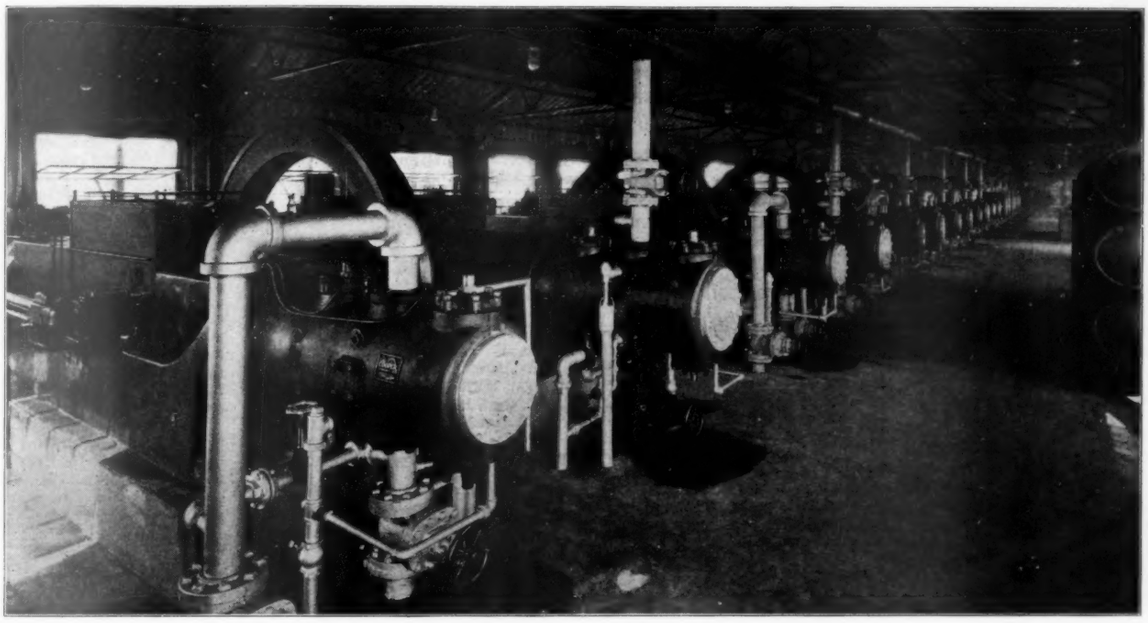
Simms Oil Co. set 6-inch casing at 2,015 feet in Berg E-2, Section 30-15-15; J. S. Smith has the hole standing full of oil at 2,290 feet in No. 2 Shirey, Section 36-15-17, and arranging to pump, and Staves and others are drilling at 1,650 feet in No. 4 Jeffus, Section 26-15-17.

The Texas Co. set 10-inch casing at 60 feet in No. 2 Reynolds and rigging up to drill No. 3 in Section 23-15-17; set 10-inch at 45 feet in No. 7 W. A. Smith and rigging up to drill No. 8 in Section 31-15-16, set 10-inch at 60 feet in No. 5 Stout Lumber Co., Section 31-15-16, and drilling at 1,075 feet in No. 1 Ward and at 650 feet in No. 2, Section 23-15-17.

Webster Parish

Production in the Cotton Valley district fell off another 838 bbls. during the week, leaving the average output of that field only 5,840 bbls. a day. A few new wells are being started but the ac-

(Continued on Page 100)



Whether It's a Race Horse or a Gas Engine Let the Fellow Who *Lives* With Them be the Judge

There he stood with a strap snapped to either side of his halter, tethered midway of the door with head hanging and one eye closed. In our judgment he was a homely example of horse flesh —long, lean and lifeless—which no racing fan would ever pick for a winner. Yet his owner, an experienced old track man, explained that he had brought him under the wire within the money in thirteen races during the season. The point is that our experience with race horses hadn't been intimate enough to teach us to see and appreciate the points that really count in winning a race.

It is somewhat the same with gas engines. One office executive questioned the open form of construction on a Cooper engine on the grounds that it didn't look so well. The very next man to visit the Cooper booth at Tulsa was an operating engineer with half a life time's experience on gas engines. His response was, "You needn't tell me anything about a Cooper engine for I am operating four of them. Yesterday morning I took up the wear in a crank pin box, and had the engine back on the load in exactly four minutes. I am responsible for operation in a gasoline plant and I am getting it with these Cooper engines."

It has been the men with some operating experience who have selected Cooper engines for so many of the larger oil companies during the past year.

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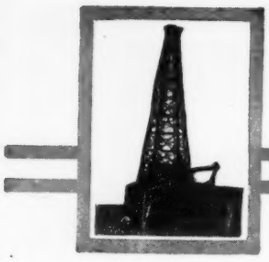

East Central Texas

By Staff Correspondent

Fourteen wells in Wortham producing 59,000 bbls. a day., some of them pinched down because of salt water showings in two big wells. There were over 150 drilling wells in the field with many rotaries rigged up ready to start. Portable refinery appears. Drilling regulations.

MEXIA, Tex., Dec. 27.—Fourteen wells had been completed in the Wortham Field when this report was dispatched today, and the total production this morning was estimated at 59,000 bbls. a day. Five big wells in the field are pinched in because of water showings in two of them, which account for the lack of gain in production in the field from its status on Tuesay. The latest wells reported in were the Simms Oil Co.'s No. 1 Colome, a north offset to the Atlantic Oil Producing Co. & Penn's No. 1 McCorkle, which started off at 8,000 bbls. a day from sand at 2,986 to 3,015 feet, and the Pure Oil Co.'s No. 2 Bounds, which got sand at 2,938-60 feet and made 1,113 bbls. the first five hours or at the rate of about 5,300 bbls. a day.

The cold weather of the past week did to the Wortham area about everything that extreme cold weather can to hold back an oil field. Ponds were frozen; likewise water lines, necessitating the shutting down of nearly all the drilling wells in the field. It was too cold for derrick building or for outside work of any kind and added to all this the Christmas season called many men back to their homes and families.

By the time the cold weather put a stop to operations there were over 150 wells drilling in the field and with a return of normal weather conditions, 200 wells will be drilling at once. There are 20 wells at a depth which would normally permit their completion within a few days. There are 117 derricks up, many of which are rigged up ready to start drilling.

Appearance of Water

The appearance of water in the new well of the E. L. Smith and others on the Edwards farm caused the Boyd Oil Co. to pinch in its three wells on the Simmons farm and the Atlantic Oil Producing Co. & Penn to pinch in their No. 1 McCorkle, which resulted in a sharp falling off in the production of the field commencing Wednesday. On that day the Atlantic Oil Producing Co. & Penn's No. 1 McCorkle was permitted to produce only 7,487 bbls.; the Boyd Oil Co.'s Nos. 1, 3 and 4 Simmons, 15,601 bbls. The other wells in the field were permitted to flow wide open. Mrs. J. K. Hughes' No. 1 Simmons producing 6,870 bbls.; Boyd Oil Co.'s No. 1 Boyd, 715 bbls.; Kirby Petroleum Co.'s No. 1 Bounds, 4,469 bbls.; Pure Oil Co.'s No. 1 N. Bounds, 3,043 bbls. E. L. Smith and others' No. 1 Beall, 3,514 bbls.

Treating Crude

Smith and others' No. 1 Edwards made 2,500 bbls. of good oil and 1,682 bbls., consisting of 97 per cent b. s. and 3 per cent water. By the use of tret-o-lite this b. s. was converted into good oil.

The eleventh well in the field was Strube & Strube's No. 1 on a little fraction of an acre corner of the Lindley farm on the west side of the road from Mexia to Wortham, and between a lease of the Kirby Petroleum Co. and the Godley Oil Co. It started at 4,000 bbls. a day from sand at 2,924-85 feet, first oil at 2,975 feet.

On Thursday the production of all the 11 wells in the field was 45,016 bbls., with some of the wells still pinched in. The big producer of the Atlantic Oil Production Co. and Penn on the McCorkle farm began showing a trace of cut oil and its production was pinched down to 7,163 bbls.

Friday's production report showed a further falling off to 43,558 bbls. a day for 11 wells with the Boyd Oil Co.'s three wel's on the Simmons farm making 14,566 bbls.; and one on the Boyd farm, 712 bbls.; Atlantic Oil Producing Co. & Penn's No. 1 McCorkle, 6,578 bbls. Mrs. J. K. Hughes' No. 1 Simmons, 6,398 bbls.; Kirby Petroleum Co.'s No. 1 Bounds, 4,271 bbls.; Pure Oil Co.'s No. 1 Bounds, 2,368 bbls.; E. L. Smith's No. 1 Beall, 3,365 bbls.; E. L. Smith's No. 1 Edwards, 2,400 bb'.s.; Strube & Strube's No. 1 Lindley, 2,900 bbls.

The Marland Oil Co. and Simms Oil Co.'s No. 3-A R. Simmons, was the twelfth producing well in the field. It got sand at 2,925-65 feet and started at 3,500 bbls. a day.

Just how far north the Wortham pay will extend will not be known until the Humble Oil & Refining Co. gets ready to drill up its acreage there. According to the Humble company's geologists the northern limit is in the northeast quarter of the Ella Dood 100-acre farm. The Humble owns a block of leases in that part of the field and does not intend to move in until it has finished all the wells in the center and southern end of the field required of it by offset regulations.

In the Older Fields

The Richland Field is defined in all directions and little more is expected of it aside from production from inside wells. One wildcat drilling between Richland and Currie is not attracting much attention. The Sun Co.'s test on the Swink farm, south of the Richland gas area went out of chalf at 2,700 feet, which was considered favorable and would have been completed by now but for the extreme cold weather.

The Powell Field is entirely on a producing basis so far as the deep pay is concerned. The only wells to be drilled there will be shallow tests which if they produce at all will be small wells.

The Powell Petroleum Co.'s No. 1 Greer, a wildcat in Navarro County, was abandoned as dry at 3,535 feet.

Elliott & Nicolle's test on the Westbrooke farm, in the Bazette area was close to the top of the chalk when last heard from. It is being watched because the Bazette area district is regarded as hopeful territory owing to the big gas production which the Boyd Oil Co. found in one of its tests there. Bazette is northeast of Powell and in Navarro County.

Recent completions in the Powell Field were as follows: Pure Oil Co.'s No. 65 McKie, dry and abandoned at 3,142 feet; The Texas Co. and Magnolia Petroleum Co.'s No. 30 R. T. Kent, 12 bbls., sand at 1,525-50 feet; LaRue & Smith's No. 1 Holmes, abandoned at 1,070 feet; Neeny & Smith's No. 1 Goldman 5 acres, dry at 1,471 feet; Smith and others' No. 1 Boyd, location abandoned; Tidal Oil Co.'s No. 9 Keith, dry at 1,115 feet; Williams and others' No. 1 T. Boyd, location abandoned.

In the Richland district recent completions were Derby Oil Co.'s Nos. 1 and 2 Davis, locations abandoned; Gulf Production Co.'s No. 4 Elkins, sand at 2,980-92 feet, 75 bbls.; No. 5 Elkins, sand at 2,990-92 feet, 100 bbls.; the Sun Co.'s No. 9 Brown, location abandoned; Richardson & McAllister's No. 1 Milligan, Lotham survey, salt water, abandoned at 3,220 feet; Lenoir & Shafer's No. 1 Edgar, dry and abandoned at 3,272 feet; G. I. Moore and others' No. 1 Bledsoe, dry and abandoned at 3,574 feet. E. C. Meade and others' No. 1 Tally, location abandoned and lease sold to the Atlantic Oil Producing Co.

Install Portable Refinery

A portable refinery has been installed on a siding of the H. & T. C. Railroad which is expected to be in operation early in January with a capacity of 2,000 bbls. of crude per day. The owners say they will be able to recover 25 per cent gasoline and 20 per cent kerosene from Wortham crude and the production will be purchased from the Rio Bravo Oil Co. operating along the railroad right of way. The Clayton Oil & Refining Co. will take 25 per cent of the Rio Bravo production and the Humble Oil & Refining Co. will take 50 per cent.

Judge H. E. Bell, chief oil and gas supervisor of the Texas Railroad Commission, announced here Friday that operators would be required to allow cement to set 72 hours, at least, before drilling in and follow by a thorough test so as to get the source of any water inroads. Operators are using a quick. setting cement in this field and some of them have been in such a hurry to complete wells that they talked of drilling in one of two days after cementing. As the manufacturers of the cement setter make no claims that would warrant such action in a field where 5,000-bbl. wells are the rule, there was danger that some wells might be ruined by too hasty action, hence the order of the commission.

The commission also issued an order providing that all drilling wells should be located at least 150 feet from the lease lines and no closer than 300 feet to each other. This order, if carried out, would prevent closely drilled town-lot operation.

Rocky Mountain Area

By F. B. Taylor

CASPER, Wyo., Dec. 27.—The Murphy Dome in Hot Springs County is attracting attention. The Producers & Refiners has takeen up leases and is preparing to put down a deep well. This district lies close to the Black Mountain Dome of the Utah Oil & Refining Co. and is in an area of small structures in the hollowed cove formed by the bend of the Big Horn Mountain range where that range swings westward after coming down from the north.

The Ohio Oil Co. went into the Murphy Dome in 1918 and drilled a test with a machine. The first Wall Creek sand shows on the surface and it is considered the Ohio went to the third Wall Creek sand where some gas and a small show of oil was found. The Ohio well stopped at about 1,800 feet and was not considered worth saving so was plugged and abandoned. Since then the discovery of production in the Dakota formation has awakened interest in the Murphy Dome and the Producers & Refiners has moved in a standard rig and heavy tools for a deep test. The well is to start with a 20-inch hole and will drill to the Tensleep sand if no commercial production is found.

The Ohio well drilling in the Oregon Basin with a rotary outfit was forced to stop work and the Flinn & Ache well is also shut down until the weather moderates. The intense cold, coupled with heavy winds, made the work very slow and several of the crew had frosted faces as a result.

Still Hope in Byron Field

The California Co.'s well near Lovell, in the Byron Field, that caused some excitement a few weeks ago is drilling to the Dakota formation. The showing of oil found in the Frontier sand is exhausted and did not prove of commercial value. However, it appears as though the well would have a good chance of finding oil in the Dakota sand.

The wildcat well drilling near Casper is also shut down pending better weather. The hole is at 1.870 feet and through the first Wall Creek sand; the second sand should come in about 200 feet deeper and it is the intention of the drillers to put the well down to the Dakota.

The Midwest Refining Co. has a well in the old Rangely Field in Rio B'anco County, Colorado, that is estimated at 100 bbls. at a depth of 2,025 feet. The hole was started several years ago and recently cleaned out and drilled deeper. The Midwest has another test drilling on the same structure.

Up to December 1, the Cat Creek Field in Montana produced 1,604,645 bbls. of crude, according to the records of the pipe line shipments filed with the Railroad Commission of Montana. This is expected to show a slight decrease under the production figures for the Sunburst Field in Toole County, for the Sunburst Field has produced more oil than Cat Creek in the past 11 months.

Field Runs

Salt Creek	45,780
Teapot	1,400
Big Muddy	2,580
Grass Creek	2,780
Elk Basin	830
Greybull	20
Rock Creek	3,200
Lance Creek	850
Poison Spider	220
Osage	350
Hamilton Dome	460
Lander	210
Byron	60
Pilot Butte	30
Lost Soldier	5,470
Ferris	110
Cat Creek	3,100
Kevin Sunburst	3,540
Craig	1,100
Fort Collins	715
Florence	225
Miscellaneous	500
Total	73,530

Weather Halts Operations

On account of the cold weather and the Christmas holidays the field work has been shut down to a minimum over the Rocky Mountain region. Many of the workers have gone to distant homes and the production men are about the only ones active. While the thermometer went to 35 below the past few days, a still colder wave is now reported in Montana and headed for Wyoming with temperatures as low as 54 below zero reported in Cat Creek and Sunburst.

The Great Falls refinery was threatened with a bad fire when the safety valve on a still opened. The escaping vapor caught at once and a pillar of flame 100 feet high roared into the air for a time. With the help of the Great Falls fire department, the fire was brought under control before any serious damage resulted.

Salt Creek Field has had several fatalities the past week, Otto Lundblad, his wife and their two children were killed outright or died from burns received in an explosion of gas in their home at Lavoye. The bodies were sent to Mobridge, S. D., for interment. A. L. Rumfelt, a Midwest Refining Co. em-

(Continued on Page 96)

Why the Gear?

in Westinghouse Turbine Generator Units

WITHIN certain limitations, the higher speed at which a turbine operates the more efficient it becomes. On the other hand, a generator attains its maximum efficiency at a moderate speed.

Consequently, the gear in the Westinghouse Turbine Generator Unit effects the best overall efficiency because it allows both the turbine and generator to operate at their best speeds.

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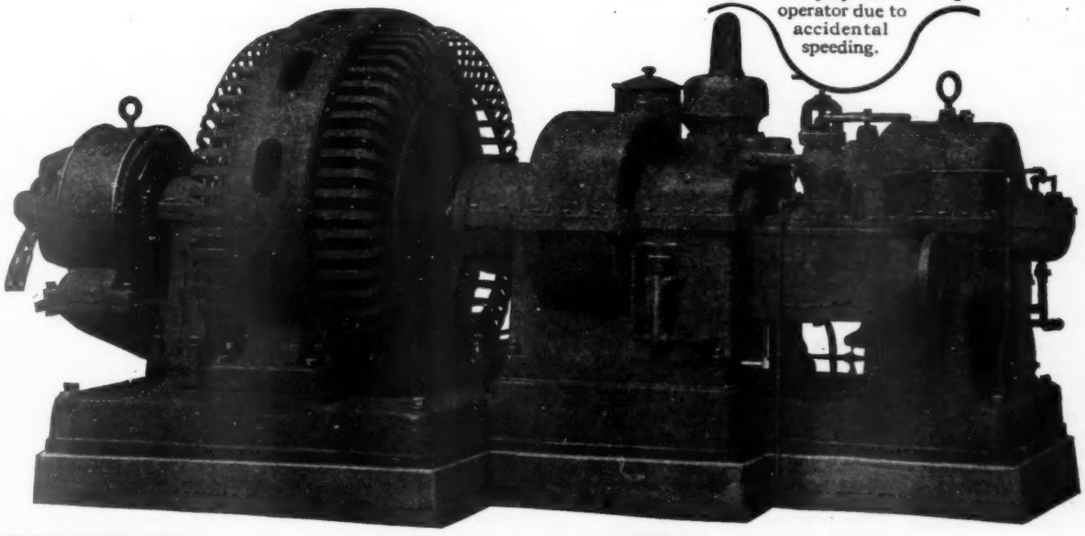

Westinghouse

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California Field Operations

By L. P. Stockman

Marland Oil Co.'s No. 2 Rosecrans makes 765 bbls. Associated Oil Co.'s No. 2 De Francis, Dominguez, producing 4,492 bbls. Southeastern wells in Dominguez troubled with water. Superior Oil Co.'s No. 52 Torrance, bests of three completions there, good for 332 bbls. Standard's No. 15 Temple, 743 bbls.

LOS ANGELES, Cal., Dec. 27.—Production of crude in California during November was 10,881 bbls. less than the daily output during the previous month, the average during November being 592,234 bbls. and for October 603,115 bbls. The decrease during the month was due principally to declines at Santa Fe Springs, Torrance and Long Beach, the latter showing a loss of 7,954 bbls. a day. Rosecrans increased from 2,302 bbls. daily during October to 4,309 bbls. during November, while Dominguez averaged 33,767 bbls. during November and 32,576 bbls. during October. Rosecrans will probably average a little better than 7,000 bbls. a day during December, while 45,000 bbls. is a conservative estimate for Dominguez during the same period. The present production at Rosecrans is around 9,000 bbls., but Dominguez is spouting somewhere in the neighborhood of 60,000 bbls. The average for December, however, will be under these figures, since there was very little change during the first two weeks of the month.

Torrance dropped from 49,447 bbls. a day during October to 45,586 bbls. daily during November and indications point to still further decline during December, although the change will proably not be as great as during the past month. Santa Fe Springs declined 1,812 bbls. a day and conditions point to a decrease of a like amount during December. There was no great change in any of the other districts, some registering increases and others declines. From present indications, it looks as though the total State production during December will show an increase of about 5,000 bbls. a day, due principally to development work at Dominguez and Rosecrans.

Added to Stocks

A total of 2,453,927 bbls. was added to stocks during the month, the greater part of which consisted of crude and fuel oil. Heavy crude and fuel oil increased 1,226,512 bbls., while 517,309 bbls. of refinable crude was added to stocks. Naphtha distillates (tops) was the only item to show a loss, 302,035 bbls. being withdrawn from storage. Gasoline stocks increased 346,655 bbls., while the stocks of all other products gained 665,486 bbls. The total fluid stocks on hand November 30 were 123,945,219 bbls., as compared with 121,491,292 bbls. on October 31. The total fluid stocks on hand at the close of November consisted of 55,828,377 bbls. of heavy crude and fuel oil, 40.946,221 bbls. of refinable crude, 10,630,599 bbls. of gasoline, 10,458,267 bbls. of tops and 6.081,755 bbls. of all other commodities, such as kerosene, lubricants, asphalt, etc.

There was a very substantial decrease in development work, although the 62 wells finished during November added more new production than the 84 finished during October. The initial daily output of the new wells during the past month was 33,130 bbls. compared with 21,534 bbls. during October. The output from the four new wells at Dominguez and the eight new producers at Rosecrans accounted for 17,331 bbls. of the total new production added. November showed 63 new rigs and 434 strings of tools in operation, compared with 87 new rigs and 456 drillers during October. Thirty dry holes were abandoned and 50 producers dismantled during the past month.

Production at Rosecrans registered a slight increase during the past week as the result of the completion of No. 2 Rosecrans of the Marland Oil Co. The Marland's new producer, flowing through a ¾-inch bean under a pressure of 390 pounds, was good for 765 bbls. of 40.9 gravity oil which registered a cut of 2 per cent. It was drilled to 4,520 feet and finished with a 4¾-inch oil string carying 240 feet of 100-mesh screen. The company's No. 3 proved wet at 4,126 feet and the 8¼-inch has been recemented. No. 1 Vaughn of the General Petroleum made a short flow after beng plugged back to 4,670 feet but water trouble again developed and the company has decided to clean out the hole and make a good job of it. The crew was accordingly put to work ripping the 6¼-inch and 4,500 feet of the string will be pulled as the first move. No. 1 Vaughn, which offsets E. J. Miley's No. 2 Athens to the east and No. 1 O'Dea of the Barnsdall to the north, has caused the General Petroleum no end of trouble. No. 2, however, is going ahead rapidly at 4,145 feet and, barring unforseen mechanical difficulties, will be on production before No. 1. On the Amestoy lease No. 1 is drilling in a hard sandy shale at 6,514 feet but so far the General Petroleum has failed to pick up a sand capable of commercial production. The Union's offset to this well, No. 1 Trust, is beng cleaned out at 5,801 feet with indications pointing to a wet job. The Union's No. 1 Gordon, a little farther southwest, although devoid of any showing of importance, is going ahead at 5,656 feet, the formation being a sandy brown shale. E. J. Miley, after killing his No. 1 Athens, went ahead and, although the last 10 feet was cored solid, the gray sand refused to respond to the ether test. The hole today is 5,010 feet deep and it is understood additional core samples will be taken. Good speed is being made on Nos. 3, 4, and 5 and, although No. 6 is being rigged up, the hole has not yet actually been spudded in.

The Marine Oil Co. has three potential producers in Nos. 31, 32, and 33. Barring mechanical trouble, the first to be finished will be No. 31, now making hole at 4,897 feet, followed by No. 32, at present standing cemented at 4,322 feet. George F. Getty shows 2,748 feet of hole in No. 1 Athens, 2,148 feet in No. 2 and a rig up for No. 3. The San Joaquin Oil Co., under the direction of Paul Getty, has one hole at 2.537 feet and a rig up for No. 2. The Standard took a core in No. 1 Cowan, in the northeastern part of the field at 5,533 feet and found the formation to be a hard sandy brown shale which would not react. No. 1 Anderson of the Pan-American, at 4,397 feet, and No. 1 Leonis of the Shell, at 4,535 feet, are not yet deep enough to bear watching. The Petroleum Midway is going ahead in three holes and rigging up for work in No. 1 Baskin. No. 1 Colby, now at 4,154 feet, will be deepened and, although No. 1 Folsom, at 2,840 feet, and No. 1 McCormick, at 1,450 feet, are just getting under way, good speed is being made in drilling. The Mohawk Oil Co. is building a rig for No. 2 to be spudded in immediately upon the completion of No. 1 now going ahead in a stick shale at 4,138 feet. The Sentinel did not wait to complete its first producer in this district before starting new work and the company's drilling sheet shows No. 1 Athens at 5,254 feet; No. 2 at 2,480 feet and No. 3 at 2,460 feet. The Associated put No. 1 Brockley on a production test after cleaning it out to bottom, 5,003 feet, but found the water trouble in this hole had not been conquered. The hole has been cemented about four times, but none of the attempts has proven successful in the slightest degree. The company is drilling the cement out of No. 2 Higgins at 4,067 feet and should bring it in as a producer at around 4,375 feet. The company spudded in No. 2 Wanka during the week and is going ahead at 714 feet. The Julian Petroleum fished out all but 140 feet of drill pipe in No. 1-A Athens and may be in a position to finish this hole in the near future.

Dominguez

For the second consecutive week, the Associated focused the attention of operators on the Dominguez Field by bringing in a big well. The company's successful completion was No. 2 De Francis, good for 4,492 bbls. of 30.6 gravity oil, which at present is cutting about 4 per cent. This, the company's third big well on this lease, was spudded in and drilled to completion in 82 days. It was brought in from 4,270 feet, after being finished with a 4¾-inch oil string carrying 380 feet of 120 mesh screen. On this 50-acre De Francis lease, the Associated now has three producers making 11,300 bbls. daily and three drillers, No. 1-B at 4,120 feet; No. 5 at 3,755 feet and No. 6 at 3,844 feet. A rig was erected some time ago for No. 7 but the hole was not spudded in. Offsetting this lease to the east the Shell has one producer, No. 3 Manuel, doing 3,450 bbls. and four drillers, No. 1 at 4,479 feet; No. 2 at 3,975 feet; No. 4 at 3,920 feet and No. 5 at 4,005 feet. Nos. 1 and 2 are experiencing water trouble but may be on production shortly. Nos. 4 and 5 have not yet picked up the sand but should do so within two weeks. On the Reyes property the Shell has five holes, all nearing completion depths, and one, No. 20, which should be on production within a few days. The company's No. 1 Hellman, in the northern part of the district, is being carried down for deep production and shows 5,838 feet of hole.

The Marland Refining Co. is still battling with water in No. 4 Dominguez and another cement job will be necessary at 4,370 feet. Nos. 5 and 6 are going ahead steadily, the former at 3,600 feet and the latter at 2,650 feet. The Henderson Petroleum Co. is making unusually good footage in No. 1 Del Amo and reports 3,700 feet of hole, the formation being a hard sand. The Birch Oil Co. is drilling in a hard gray sand at 5,800 feet in No. 1 Humphries, a wildcat in the extreme western part of the field, but has very little chance of cutting in on this big production.

Trouble With Water

The United Oil Co. has recemented No. 2 Dominguez at 4,390 feet and, although several wells in the extreme southeastern part of the field are held up with water trouble, each case is attributed to mechanical trouble. It is a little too early to say that edgewater conditions are responsible for the difficulties, but it seems peculiar that several of these wells should run up against the same proposition. Three wells, No. 2 Dominguez of the United and Nos. 1 and 2 Manuel of the Shell, but a short distance apart, are all held up with wet jobs. It may be possible, of course, that the reported mechanical difficulties are just coincidences, but since No. 1 Manuel of the Shell and No. 2 of the United are the farthest east on the structure, there is a possibility edgewater may be the direct cause. The water in No. 2 Manuel is, in all probability, due to a bad shut off, but there is some doubt as to the actual conditions responsible for the water in No. 1 Manuel and No. 2 Dominguez

Developments during the next few weeks should determine whether edgewater is responsible and, if No. 1 Manuel of the Shell is successfully finished as a clean commercial producer, several new holes will undoubtedly be started on this property by the Shell. The Union is working on six holes but only one looks like it might result in production during the coming week. This hole is No. 3 Carson, now at 4,205 feet. No. 5 Callender at 4,872 feet and No. 3 Hellman at 4.268 feet both look good for production as soon as some minor mechanical trouble is corrected.

Torrance

Although Torrance is credited with three new wells during the past seven days, only one was of any consequence. The largest and best producer of the week was the Superior Oil Co.'s No. 52 Torrance. It was drilled to 3,813 feet and finished with an 8¼-inch oil string carrying 285 feet of 60-mesh screen.

(Continued on Page 72)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Agwimars, December 16, New York, crude	75,867
Agwisea, December 16, New York, crude	90,314
Eurana, December 18, New York, crude	69,504
Samuel Q. Brown, December 19, New York, crude	74,849
Beaconlight, December 21, Boston, crude	75,706
Dixie Arrow, December 21, New York, crude	70,115
E. T. Bedford, December 21, New York, crude	119,663
Coastwise	
Tejon, December 15, Seattle, fuel	70,936
Oleum, December 15, San Diego, fuel	38,176
Los Alamos, December 15, Seattle, refined	35,060
El Segundo, December 17, San Diego, refined	31,911
Lubrico, December 17, Richmond, crude	86,999
W. S. Miller, December 18, Richmond, crude	74,525
Utacarbon, December 18, Martinez, crude	75,066
Liebre, December 19, Portland, fuel	75,183
El Segundo, December 19, Eureka, refined	30,873
Mericos H. Whittier, December 20, Avon, crude	70,369
Lebec, December 20, Seattle, fuel	70,815
K. R. Kingsbury, December 21, Richmond, crude	83,958
R. J. Hanna, December 21, Point Wells, fuel	78,134
Warwick, December 21, Portland, refined	42,107
Frank G. Drum, December 21, Avon, crude	66,497
Exports	
Los Angeles, December 15, Honolulu, fuel	66,194
La Placentia, December 15, Chile, fuel	74,118
San Gerardo (Br.), December 16, Chile, fuel	109,336
Meton, December 18, Honolulu, fuel	78,364
San Dustano (Br.), December 20, London, refined	75,727
Scopas (Dutch), December 21, China, refined	58,071
Mina Brea (Br.) December 21, Vancouver, crude	46,706
Dilworth, December 21, Manila, fuel	73,739
From San Francisco	
J. A. Moffett, December 15, Seattle, fuel	63,992
Swiftwind, December 15, Fall River, tops	80,110
Cathwood, December 16, Seattle, fuel	79,223
Richmond, December 17, Seattle, fuel	64,715
Lubrico, December 21, Astoria, fuel	87,331
H. T. Harper, December 21, Point Wells, refined	29,142

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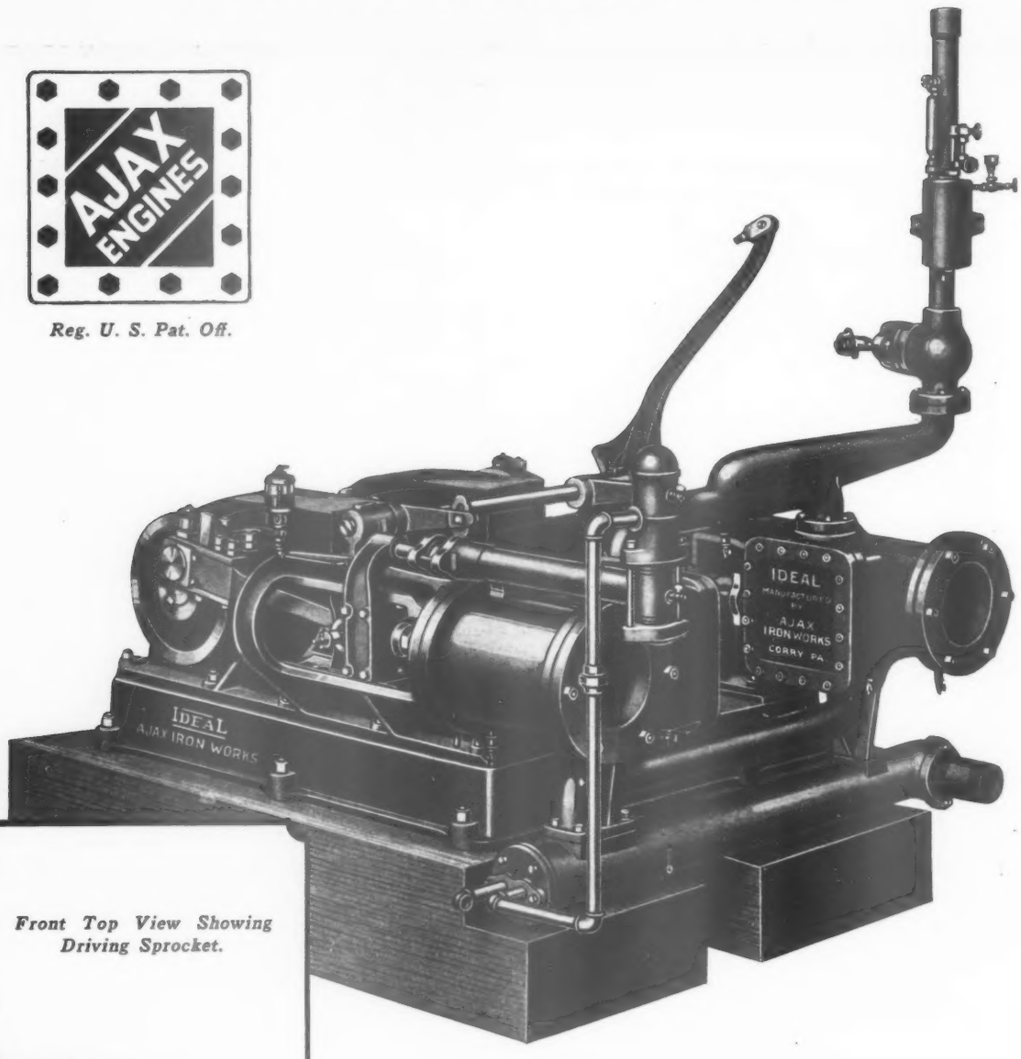

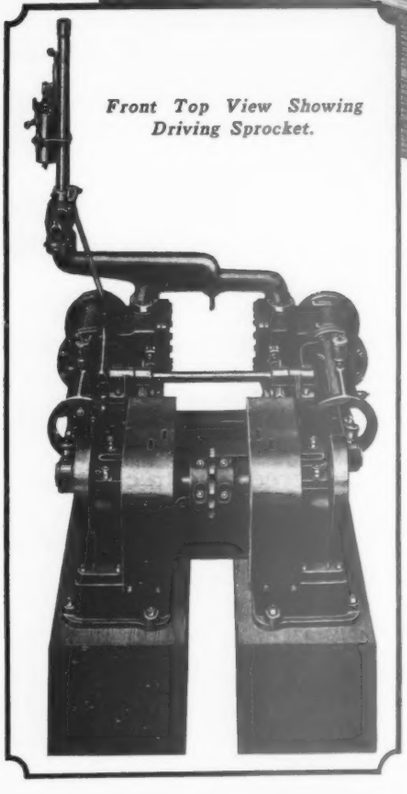

Front Top View Showing Driving Sprocket.

Illustration shows a 10 x 10 Ideal Ajax Twin Engine complete with pump and heater. Note round valve guide.

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By D. S. Wakenight

Eastern operators feel Wortham production will delay crude price advances. Very little new work starting aside from efforts of gas companies to find new production. World's deepest well on Chestnut Ridge drilled deeper, but fails to respond with any increase in gas flow.

PITTSBURGH, Pa., Dec. 29.—Nothing has transpired during the current year to so completely dissipate the hopes of the eastern oil producer and operator for an early advance in the market as the bringing in of the new pool at Wortham, Texas. All late reports point to another flood of overproduction and possibly a long delay in the advance of the market. The eastern producer and operator is fully informed on general conditions and trimming his sails accordingly. There will be very little new work started this winter or until after the new pool in Texas has spent its force. Eastern operators know that they cannot produce oil at the present market price of crude and will not attempt to do so. At this time some of the larger operating companies are doing practically nothing in the way of development work. The reports from month to month show considerable work under way and starting but it is not generally known that not less than 75 per cent of this work is in gas territory and a part of it with a view to discovering new fields, many of the old having been exhausted.

Field Developments

The deep sand territory in southeastern Ohio completed all of the good producers of the past week. In Section 10, Perry Township, Licking County, the Pure Oil Co.'s second test on the I. E. Seward farm produced 195 bbls. the first 24 hours after drilled through and shot in the Clinton sand. The location is 600 feet west of the Carter Oil Co.'s test on the Frank Phillips farm. In Lot 9, Hanover Township, M. F. Whitehill & Co.'s test on the Ray Crawford farm filled up 2,500 feet with fluid the first 24 hours and the second 24 hours flowed 177 bbls. It is located 600 feet north of the Carter Oil Co.'s second test on the Jacob Vanderbark farm.

In Hanover Township, Licking County, the E. H. Everett Co. completed a test on the G. C. Fleming farm. It produced 45 bbls. the first 24 hours. In Lot 14, same township, the same company's test on the N. F. Romine farm filled up 800 feet with fluid the first 24 hours after drilled into the Clinton sand pay. In Hopewell Township, the Planet Oil Co.'s test on the A. R. Mackey farm is good for 45 bbls. a day in the same formation. The location is 1,800 feet south of production on the Charles Shank farm.

Gasser in Holmes County

In Lot 5, Monroe Township, Holmes County, the East Ohio Gas Co. got a gasser in the Clinton sand good for 3,000,000 feet when it completed a test on the A. R. Mackey farm. The well is also spraying considerable oil. In Lot 10, same township, the same company has a gasser good for 1,500,000 feet at a second test on the Charles Shank farm. In the northeast quarter of Section 23, Rush Creek Township, Fairfield County, the Overland Oil & Gas Co. drilled No. 6 on the Jennie Kagey farm through the Clinton sand without getting a show of oil or gas. W. M. Cline & Co. have completed and shot in the Clinton sand their No. 3 on the F. C. Veatch farm. The hole filled up 2,500 feet with fluid but did not have gas pressure enough to flow its production. They are placing a gas engine and will put it to pumping.

In Section 28, York Township, Morgan County, the Pure Oil Co. completed its second test on the William Epply farm. It is good for 40 bbls. a day in the Berea grit. It is located 400 feet north of the first test. In Salem Township, Washington County, Daley Brothers have a 4-bbl. pumper in the Macksburg 500-foot sand at a test on the Jacob Morganstern farm, located 3,000 feet east of production on the John Wentz farm. In Section 19, Liberty district, Washington County, the Dutch Oil Co.'s No. 14 on the Christ Oliver farm is a 10-bbl. pumper in the second Cow Run sand. Brown Brothers & Valentine Brothers have a dry hole in the Keener sand at a second test on the Martin Matheny farm in Newport Township. In Section 6, Enoch Township, Noble County, the Cain & Lovell Oil Co. had the same kind of luck when it drilled a second test on the G. W. Harper farm through the Buell Run sand. In Section 9, Wayne Township, Monroe County, Roy Bartness has a light pumper in the second Cow Run sand at a test on the James Drake farm. The Kirk & Dunn Oil Co.'s No. 13 on the Yaggi heirs' farm in Knox Township, Columbiana County, is a 2-bbl. pumper in the Berea grit.

Testing for Oil and Gas

In Muskingum and Coshocton Counties, the Ohio Fuel Gas Co. is making an effort to find gas or oil in the Niagara lime. In Monroe Township, Muskingum County, this company is drilling at 3,350 feet at a test on the William Snell farm. In Linton Township, Coshocton County, the same company is down 4,100 feet on the Charles Williams farm. With the same formation as the objective, the same company has started to drill a test on the Luell Estep farm. In the same township the same company is building a rig on the Mary E. Clark farm. In Monroe Township, Muskingum County, Leonard Oil & Gas Co. has drilled deep into the Niagara lime at a test on the H. C. Bainter farm. Nothing was found and drilling has been suspended.

Hocking County

In the southeast quarter of Section 32, Falls Gore Township, Hocking County, the Midwest Oil & Gas Co. is drilling a test on the J. W. Geiger farm, located 3,000 feet northwest of the Griffin Producing Co.'s No. 3 on the Dora Thomas farm. In Section 21, Washington Township, the Gordon Oil Co. is drilling on the Henry N. Ford farm. Ralph Brothers have started to drill on the Smith Brothers farm in Franklin Township, Licking County. In the same township, Moore & Adams are drilling on the T. L. Stevens farm. In Newport Township, Washington County, the Glen Oil Co. is drilling a second test on the Frank D. Kerr farm. Frank Goddard & Co. are drilling a second test on the Ruth Uppole 10 acres. Charles Dailey and others have started a test on the O. O. Newlon farm. In Liberty Township, Archer & Co. have started to drill a test on the Frank Schenkle farm, located 1,000 feet east of the second test on the James Hadley farm.

West Virginia Completions

Operators in the West Virginia Fields had another discouraging week, completing nothing better than light pumpers. On Cabin Creek, Cabin Creek district, Kanawha County, the United Fuel Gas Co.'s No. 27 on the Imperial Coal Co.'s property, is good for 20 bbls. a day in the Berea grit. On Gillespie Run, Grant district, Ritchie County, the Hope Natural Gas Co.'s test on the Andrew Jordan farm is a 12-bbl. pumper in the salt sand. On the right fork of Gillespie Run, the same company's test on the L. G. Hanley farm is through the Berea grit and a light gasser. Located in Troy district, Gilmer County, the Hope Natural Gas Co.'s second test on the J. M. Wood farm is a gasser in the Big Injun sand. The Carnegie Natural Gas Co.'s second test on the F. C. Goff farm is in good for 5 bbls. a day.

Tyler County

On Long Beach Run, Union district, Tyler County, A. S. McCullough & Co. have better than an average producer at a test on the Ada Parker farm. It is estimated to be good for 35 bbls. a day in the Maxon sand. In the same district, located on Stewarts Run, the Neeley Oil Co.'s test on the J. B. Stewart farm is a gasser in the Maxon sand good for 1,000,000 feet. The Little Flower Oil Co. has a 5-bbl. pumper at a second test on the Morgan Henderson farm. On Georges Run, McElroy district, Andrew Carl has a rig up for a test on the Benjamin Ash farm.

In the Plum Run Field, Williams district, Wood County, Decker & Smith's test on the Thomas McAtee farm is a 10-bbl. pumper in the salt sand. In Union district, Pleasants County, the Newell Producing Co. has a duster in the Cow Run sand at its No. 4 on the John Beagle farm. In DeKalb district, Gilmer County, the Hope Construction & Refining Co.'s No. 6 on the Earl Hardman farm is a light pumper in the Maxon sand. In Troy district, the Carter Oil Co.'s test on the N. E. Talbot farm is in the Big Injun sand and showing oil. They have shut down for orders. This location is 2 miles in advance of production. In Grant district, Ritchie County, C. B. Lewis & Co. have a gasser in the Big Injun sand at a test on Presley Simmons farm. On Bell Run, Sherman district, Calhoun County, the Great Elk Oil Co.'s No. 24 on the Baker-Baughman tract is a 5-bbl. pumper in the salt sand. In Center district, Gilmer County, the McCall Oil & Gas Co. has a gasser in the Maxon sand at No. 3 on the Bennett heirs' farm.

Lincoln County Gassers

Operators in the gas area of Lincoln County are completing the usual number of wells, fair but not large gassers. In Carroll district, C. C. Wolf & Co.'s test on the Curtis Snyder farm is a gasser in the Big Injun sand. In the same district, the Cambridge Gas Co. got one in the same formation at a test on the F. Keaton farm. In Cury district, Putnam County, Stanton & Rashman have a gasser in the salt sand at a second test on the S. M. Pike heirs' farm. In the same district, the Sovereign Gas Co.'s second test on the Robert Thompson farm is a gasser in the same formation. Located 2,500 feet west of the first test on the Mary E. Scott farm on Two-Mile Creek, Malden district, Kanawha County, the Ohio Fuel Oil Co. has completed in the Weir sand a second test showing for a 10-bbl. pumper. In Murphy district, Ritchie County, the Hope Natural Gas Co. drilled a test on the A. W. Bird farm to a total depth of 2,310 feet. Finding nothing after leaving the Big Injun sand the company filled up to that formation. It is a light gasser. In Union district, the Carnegie Natural Gas Co.'s test on the Granville Smith farm is a gasser in the Berea grit at a total depth of 2,905 feet. In Washington district, Calhoun County, the Hope Natural Gas Co.'s test on the Jarvis-Knotts farm is a duster in the Berea grit.

Marion County

The Carnegie Natural Gas Co. is testing for gas in the Bayard sand on the Jacob L. Murray farm in Mannington district, Marion County. In the same district, R. S. Monroe has a show of oil in the Big Injun sand at a test on the A. M. Rowand farm. In McElroy district, Tyler County, the Hope Natural Gas Co.'s test on the N. Booher farm is a gasser in the Big Injun sand. In Clay district, Ritchie County, the Hinselman Drilling Co. has a duster in the Squaw sand at a test on the B. Fox farm. It has been abandoned. In Sheridan district, Calhoun County, the Richter Oil Co.'s test on the J. L. Elliott farm is a gasser in the Big Injun sand. In Grant district, Ritchie County, the Hope Natural Gas Co. has a gasser in the Berea grit at a test on the R. A. Stanley farm. In the same district, the same company drilled a test on the M. R. Osborne farm through the Berea grit and barren in that formation. It will make a light gasser from the Big Injun sand.

Drilling and Starting Tests

The Hope Natural Gas Co. is building a rig for a test on the Martha Kemper farm in Court House district, Lewis County. In the same district, the same company is due in the Big Injun sand at a test on the H. M. Wood farm. In Court House district, the same company is drilling on the H. C. Smith farm. In Collins Settlement district, the same company is building a rig on the Mary E. Edmiston farm. In the same district, the West Fork Oil & Gas Co. has made a location on the E. R. Raymond farm. In Skin Creek district, the Re Oil & Gas Co. is drilling at 3,260 feet on the T. J. Lough farm. At the present depth nothing has been found in any of the sand formations drilled through.

In Central district, Doddridge County, Roy Shinn is drilling at 1,000 feet on the H. Shinn farm. In Glenville district, Gilmer County, Campbell & Co. are rigging up on the U. S. Taylor farm. In Center district, Satterfield & Co. are building a rig on the A. Miller farm. In the same district, the Ohio Fuel Oil Co. has started to drill on the A. M. Coberly farm. The Ray Oil & Gas Co. has shut down for casing on the Lena Ray farm.

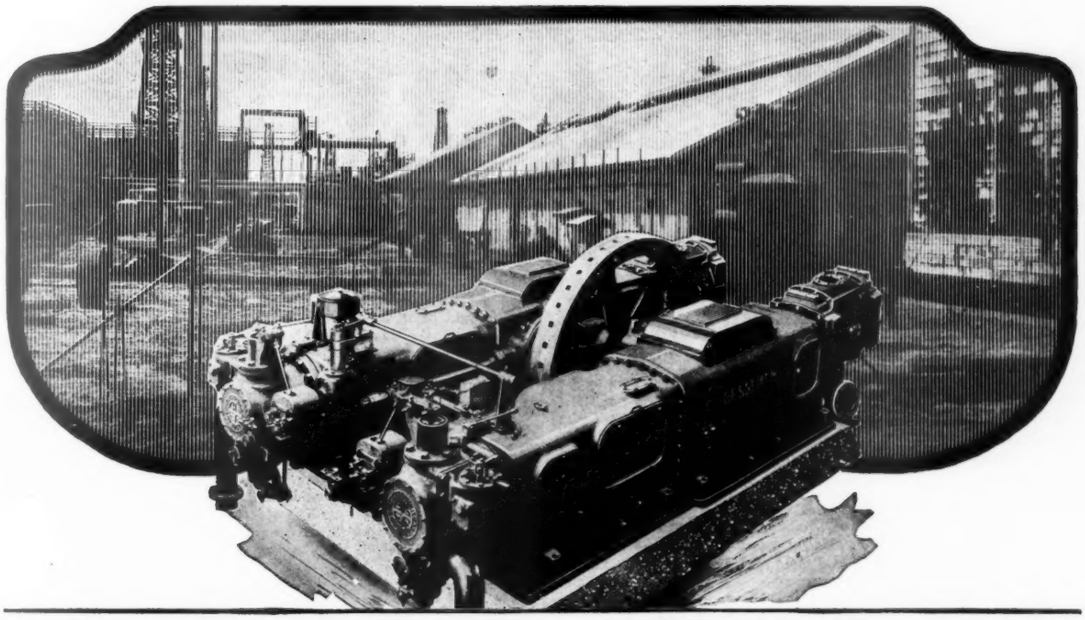
Ritchie County Tests

In Clay district, Ritchie County, Barker & Smith have started to drill on the R. T. Raymond farm. In Grant district, the Clark Oil Co. is drilling on the C. C. McKinley farm. In Union district, Hood & McQuain are rigging up on the A. W. Zichafoose farm. In Walker district, Wood County, John Leeton & Co. are rigging up on the John Copelin farm. In Spring Creek district, Wirt County, the Hope Natural Gas Co. is rigging up on the Rebecca J. Hays farm. The Pittsburgh & West Virginia Gas Co. is due in the Big Injun sand on the Charles Horner farm in Church district, Wetzel County. In Washington district, Jackson County, the United Fuel Gas Co. has rig material at a location on the H. C. & John A. Harpold farm. In Smithfield district, Roane County, the Carter Oil Co. has started to drill on the Simon's heirs farm.

Harrison County

The Reserve Gas Co. is down 800 feet at its deep test on the Chapman Smith farm in Union district, Harrison County. In Ten-Mile district, the Clarksburg Light & Heat Co. is due in the sand on the Mary Bramer farm. In the same district, the Delva-Tex Oil Co. has rigged up on the Nora B. Lanham farm. In Greenbrier district, Doddridge County, the Gulf Oil Co. has drilled to a total depth of 2,825 feet on the Abe Hinkle farm. Nothing was found at that depth and they have shut down for orders. In the same district, Trainer & Travis are due in the Big Injun sand at a test on

(Continued on Page 78)



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BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

Kentucky—Tennessee

By Vern T. Whitney

R. A. McLean brings in 300-bbl. well in Frost Pool, Allen County. Combs Development Co. gets 52-bbl. well and Petroleum Exploration Co. 50 bbls. in Idamay Field. Two deep sand producers in Warren County, Cunningham and others 30 bbls. and Gillespie Oil Co. 25. Reigle & Clarke get 85-bbl. producer.

BOWLING GREEN, Ky., Dec. 29.—The last week of the year was featured by the completion of a 300-bbl. well in the old Frost Pool of Allen County, two deep sand completions in Warren County, an 85-bbl. initial producer in the Pilot Knob section of Logan County, two 50-bbl. wells in the Idamay Pool of Lee and Owsley Counties, and several good flush wells in the North Weir sand field of Lawrence and Johnson Counties.

R. A. McLean's No. 7 on the J. W. Frost place, above referred to, in the old Frost Pool southwest of Scottsville in Allen County, near Rodemer Station, is a remarkable instance of the prolific producing possibilities of the Corniferous sand below the black shale in Western Kentucky. This well, drilled to a total depth of 255 feet, showed 17 feet of sand at 30 feet below the black shale, where it started off at better than 300 bbls. naturally. During the first six days this well put 2,700 bbls. in storage tanks, and late reports state it is holding its initial production in fine shape. It must be borne in mind that the Frost Pool is the oldest producing area in Allen County, where a number of large wells have been completed since 1913. In the early days of this pool it was not uncommon for a well to come in with a flush of 250 bbls. and hold up with a large production over a considerable period of time. Hundreds of thousands of barrels of oil have been produced from this section, which makes it all the more remarkable that such a large well should be found at this late day. Two years ago, on a lease in this area, an offset to a well 10 years old came in for better than 100 bbls.

Within the past few months several wells have been drilled to a deeper sand in this district, making it quite probable that the whole of this area, as well as others in the county, may be entirely redrilled with good results. On the Hornbuckle lease, adjoining the Frost place, the White Plains Oil & Gas Co. recently completed a 288-bbl. well in its No. 3 at a depth of 69 feet below the shale. Furthermore, No. 6 J. W. Frost was recently drilled to 112 feet below the shale, where it came in for 35 bbls. with a gas pressure said to be the greatest of any well drilled in the county. Several other wells have been drilled to the deep pay, where they showed good production, which has held up consistently.

The Rodemer area, comprising the Frost, Fisher and McReynolds Pools, famous during the busy days of 1919 and 1920, is recognized as one of the finest oil structures in the western district, and it is now thought this deeper horizon may be found under most of it. This lower horizon is undoubtedly the Silurian, which is productive in several sections of Allen County, and is probably the same horizon found in the new deep sand pays of Barren County.

It is understood the Seaboard Oil Co. is planning to test this deeper sand on its famous Hooten lease, about 1½ miles to the southeast.

Week's Work

Compared to last week this week shows 12 more completions in the State, 11 more producers, with an increase of 524 bbls. initial production, 1 less dry hole and 2 more gassers. They were distributed by counties as follows:

County—	Comp.	Prod. Wells	Prod.	Dry	Gas
Barren	7	7	49	0	0
Lawrence-Johnson	6	5	144	0	1
Warren	5	4	65	0	1
Allen	3	2	325	1	0
Owensboro district	3	2	16	1	0
Wayne	2	2	10	0	0
Lee-Owsley	2	2	102	0	0
Logan	1	1	85	0	0
Cumberland	1	0	0	1	0
Total	30	25	796	3	2
Last week	18	14	272	4	0
Difference	12	11	524	1	2

Eastern Division

Ten completions are recorded in the Eastern division for the week in review, nine making producers with a flush of 256 bbls. The best was that of the Combs Development Co. in its No. 4 on the Andy Combs in the Idamay Pool of Lee and Owsley Counties, which came in for 52 bbls. flush at an approximate depth of 1,400 feet. This well lies in the eastern extension of the Idamay Pool, in district No. 35, and is for that reason an interesting development. It was drilled to offset No. 1 Lewis J. Evans.

In the same area, the Petroleum Exploration and Hupp and Duff got a 50-bbl. strike in their No. 15 on the Spence Flannery from the regular Idamay pay. Nos. 16 and 17 were drilling.

North Weir Field

In district No. 22 of the North Weir Field in Lawrence and Johnson Counties, Garrison & Townsend completed Nos. 11 and 12 on the C. K. Dobyne tract for 40 bbls. each from the Weir sand at an approximate depth of 700 feet. This Dobyne property is in the northern extension of the Keaton Pool and is one of the best leases in the North Weir Field. Some very flattering offers have already been made for this property but no deal has yet been made. Several parties are offering to drill this farm up for one-half interest.

In district No. 33 Hovis & Young's No. 2 on the W. E. Skaggs is reported as pumping 4 bbls. from the Weir sand.

In district No. 32 the Union Gas & Oil Co.'s No. 9 L. H. Skaggs made 25 bbls. flush while No. 18 on the Levisa Skaggs, in the same district, started off at 35 bbls. from the Weir sand.

The Union Gas & Oil Co. is cleaning out Nos. 8 J. C. Gilliam, No. 1 farm; 35 J. J. Gambill, 4 W. D. Lester, 18 L. H. Skaggs and No. 9 on the L. H. Skaggs. The Union was spudding in No. 2 R. N. Sparks, No. 1 farm, and No. 4 C. K. Dobyne, No. 1 farm; No. 1 Caney Sparks, No. 8 William Lester, No. 3 J. E. Holbrook, No. 1 farm, No. 2 Foster Ferguson, No. 6 James Diles. No. 6 D. H. Ferguson and No. 2 J. E. Holbrook, No. 2 farm, were drilling in lime.

V. B. Shortage & Co.'s No 2 Fee, in the Glenwood Field, near Louisa in Lawrence County is estimated good for 500,000 feet of gas daily. There are prospects of a gas line being laid from the Gleenwood gas field to Ashland, and further development work will soon be underway in this area. The gas in the Shortridge well was secured from the Berea grit at an estimated depth of 1,400 feet.

Magoffin County

The well attracting the most attention in the Eastern district at the present time is the Eastern Gulf Oil Co.'s No. 1 on the G. M. Ballard farm in Jackson County near the Rockastle County line. The test was commenced December 15 and should be in by the first of the year.

Most of the companies operating in the eastern end of the State have taken up all the acreage for several miles around this test, as it appears to be on a well defined structure. If oil is found it is expected to be in the Corniferous.

Another area in which a great deal of new interest is being shown is in the southeastern end of Magoffn County where the Pure Oil Co. and the Petroleum Exploration are drilling a test on Trace Fork of Licking River 3 or 4 miles south of the Pure Oil Co.'s recent gasser which is estimated to be making 2,000,000 feet of gas. The Carter Oil Co. has a large acreage in this district and should something be developed it will mean that a great deal of new work will be contracted for after the New Year.

In the Lakeville section of Magoffin County the Petroleum Exploration's No. 1 William Flint is standing with oil in the hole awaiting a shot. This test was a rank wildcat and if after being shot it shows for a paying pumper it will mean that new work will be started in that area. It was finished in the Weir sand.

The Petroleum Exploration is drilling a wildcat test on the John J. Howard farm at the head of Licking River in Magoffn County near the Knott County line that is being watched very closely by oil scouts of the major companies.

Wayne County

Two producers were reported during the past week in Wayne County, both in district No. 13. At Susie, Spradlin & Marsh's No. 2 on the T. L. Harmon pumped 7 bbls. from the Beaver sand at 700 feet. No. 3 is spudding. At Big Sinking, the Bridgman Oil Co.'s No. 2 J. N. Huffaker tested 3 bbls. from the Beaver sand.

Western Division

Barren County made the best record of the past week in the western division showing seven producers out of as many completions. The most important was Lewis J. Emery, Jr., & Sons Co.'s No. 1 on the Depp and Greer farm a quarter of a mile south of production in the Gorby Pool. It pumped 4 bbls. from a total depth of 415 feet after 20 feet of pay from 364 to 384 feet was shot with 80 quarts of nitro. The shale was topped at 187 feet and drilled through at 237 feet. Drilling in the Gorby Pool has let up to some extent due to the holidays. Lewis J. Emery Jr., & Sons started No. 2 Greer and No. 1 Bybee directly across the road from the Greer tract. T. L. Gorby is spudding in No. 1 on the Bybee, 1½ miles south and east of his Taylor farm.

Emery-Moore District

In the Emery-Moore Pool, west of Glasgow, Fred Moore finished his second well on the Bruton farm, west of the Travis, for 9 bbls. at 502 feet, 185 feet below the black shale. On the Free farm, the Star Oil Co.'s No. 4 Starr pumped 10-bbls. from a depth of 568 feet. Shale was from 340 to 390 feet. Two sands were encountered, the first at 30 feet below the shale and the other at 155 feet below the shale. The lower sand from 445 to 552 feet was treated to 30-quart shot. Casing was set at 140 feet. Cap rock was from 539 to 545 feet.

Six miles to the west of Glasgow, Brewer & O'Neil recently finished Nos. 1 and 2 on the Jenkins farm good for 6 and 4 bbls. at 447 and 452 feet, respectively.

In the Hall Baker area, the Wood Oil Co. made an 8-bbl. strike in its No. 1 on the Will Church, 650 feet north of the discovery well on the Hal Baker farm, at a depth of 588 feet. Two sands, one at 100 feet below the shale and the other at 140 feet below the shale, were shot with 40 quarts each. The Consolidated Oil Co. in drilling No. 2 on the Hall Baker struck a pocket of amber oil at 275 feet. At this depth the well flowed about 50 bbls. and after practically exhausting itself was continued on down to the regular pay sand.

At Coral Hill, 10 miles north of Glasgow, Smith and Sons are reported to have drilled in an 8-bbl. starter in No. 6 on the Nichols farm at around 600 feet. Seven feet of sand was charged with 30 quarts of nitro.

Drilling Wells

Hall-Baker Pool: Wood Oil Co.'s No. 1 Mildred Church struck a flow of gas at 372 feet and had to shut down for several days; Consolidated Oil Co.'s No. 2 Hall Baker, drilling at 300 feet; same company's No. 1 Poynter, drilling at 300 feet; Harrington & Harris' No. 1 Evans, shut down.

Emery-Moore Pool: Fred Moore's No. 3 Bruton, drilling at 150 feet; Star Oil Co.'s No. 13 Ritchie, drilling at 325 feet; Ziegler Brothers, Scott & Hice's No. 3 Bradford, cleaning out after shot; No. 4 spudding; Henderson Oil Co.'s No. 3 Burris, on top of the deep sand; Carter Oil Co.'s No. 1 Jess Wininger was being cleaned out after a shot; Mazel Oil Co.'s No. 6 Childress, drilling in the black shale at about 240 feet; Stafford & Rhoedener's No. 3 Neeley was spudding in; Nelson and others' No. 1 George Dossey, drilling 17 feet below the shale with a good show of oil; Schriber and associates' No. 1 Burton heirs, one-half mile west of Oil City, was spudding.

Allen County

Outside of the big well on the J. W. Frost lease the only other development of any interest is the completion of Andrus & Millet of No. 6 Walker, south of No. 5. This well started off making 25 bbls. from a sand encountered immediately below the shale, from 329 to 337 feet, the total depth. Shale was from 282 to 325 feet.

Reed & Smith's No. 1 Willoughby, in the Meador area, was dry at 460 feet, 90 feet below the shale.

Logan County

For the first time in several months Logan County was heard from with a completion above the average for that county. Reigle & Clarke's No. 8 on the old Jim Peart farm, near Auburn, in the Pilot Knob district, opened up three years ago, was reported to be making 85 bbls. naturally from the shallow Mississippian limestone at around 500 feet.

Warren County

The McLemore - Gillespie - Price Pool came to the fore the past week with two good deep sand wells. On the Bryant lease Cunningham and others' No. 6, one location west of No. 1, tested 30 bbls. from a total depth of 1,260 feet. Two sands were struck, one at 47 feet below the shale and the other at 56 feet below the shale, showing 27 feet, which were shot with 100 quarts of nitro glycerin. The Gillespie Oil Co.'s No. 9 Gillespie, one location north of No. 8, pumped better than 25 bbls. at 1,100 feet. The shale was encountered at from 950 to 1,034 feet. The first sand from 1,040 to 1,046 feet was shot with 20 quarts and the lower sand from 1,086 to 1,093 feet was charged with 30 quarts.

In the shallow Richpond district, Roy Hogan's No. 2 E. C. Dillard, three-quarters of a mile from the nearest production, is estimated at 250,000 feet of gas at 475 feet. The sand in this test is 27 feet higher than it is in the oil wells.

In the Hardcastle area, George Stewart and Tony Bannon's No. 21 on the Cox farm pumped 5 bbls. naturally at 480 feet. The top of the shale was found at 411 feet and showed a thickness of 50

(Continued on Page 78)

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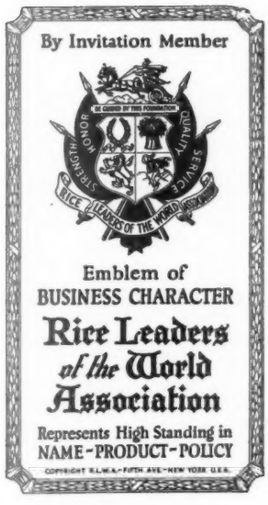

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Fields of the Central West

By Whit

Roundhead Oil & Gas Co. gets 40-bbl. well in Hardin County, Ohio. Wirebaugh and others bring in 75-bbl. producer in Wabash County, Illinois, Gillette and others 30-bbl. well in Clark County, and Rhodes & Keith 25-bbl. completion. Cline Brothers have 30-bbl. producer in Knox County, Ohio.

FINDLAY, Ohio, Dec. 29.—The week in review has been an expensive and disastrous one for the oil and gas operators in the Central West Field, for none of the fields covering this wide area escaped the heavy rains, snow and sleet, which practically may bring about the shutting down of drilling wells in many parts. Even pumping powers have been put out of business.

Streams throughout the Central Ohio, Lima, Indiana and Illinois fields have been mostly out of their banks and much property in the way of pumping wells are under water. Getting through the Central Ohio field during the week was almost an impossibility, and the same conditions prevailed from Toledo, Findlay, Lima, St. Marys and Celina and even to Fort Recovery in the Lima Field and near the Indiana line. In many spots on this trip waters were up to the bottom of the bridges along the highways, but the freeze up may eliminate further rise.

On Wednesday the Paragon Refining Co. suffered a loss estimated at $100,000 by the burning of two of its stills at its Toledo plant along with approximately 5,000 bbls. of oil. The Paragon announces the stills will be rebuilt at once.

Rome E. Goodwin, vice president of the Paragon Refining Co., who has been with this company since the close of his school days, something like 25 years or more, has resigned his position and will enter business for himself. With his parents he came to Toledo, when a small child, about the time the Buckeye Pipe Line Co. started in the Lima Field, as his father was for many years a gauger for that company, and has been back in Pennsylvania before moving to the Lima Field. Mr. Goodwin has become a prominent figure in oildom and knows well the refining industry.

Lima Field

Eleven wells are reported from the Lima Field of northwestern Ohio for the second week, the most interesting completed being that of the Roundhead Oil & Gas Co., in a second venture on the Eliza McArthur farm in McDonel Township, Hardin County. The well is 1,000 feet from the east line and 350 from the west line of the farm, and showed a production of 40 bbls., at a depth of approximately 1,470 feet. Wells in this new area are said to be holding up their production better than any other point in the Trenton Rock Field. In the same township, Schmidt and others drilled in a light gas well at No. 2 on the northeast corner of the Lee Darby farm.

The old Portage River at Elmore is more like the Ohio River at this time and runs through several counties of the eastern portion of the Trenton Rock Field. Drilling is being done now on both sides of this river, east and west of Elmore, which is in Harris Township, Ottawa County. The Zorn-Hornung Oil Co. drilled a dry hole on the Charles Kineriam farm, Section 8 of this township, and has a rig up for a test on the Harmon Minke farm, Section 13. On the north side of the river from Elmore, the Reynolds Oil Co.'s No. 3 on the Ross Reynolds farm, Section 13, is credited with a production of 14 bbls. with No. 4 drilling. The River Oil Co.'s No. 3 on the Ernest Bushman farm, Section 14, same township, pumped 13 bbls., and No. 4 is drilling.

In Hopewell Township, Mercer County, J. A. Metzger's No. 3 on the S. Fetter, Section 20, pumped 10 bbls. The well is 300 feet from the north line and 1,100 from the east line of the lease. In Granville Township, P. Klingshorn's test, 200 feet from the north line and 600 from the west line of his own farm, in the northwest quarter of Section 33, is a light gas well. Top of the Trenton was struck at 1,170 feet and drilled 30 feet in to a total depth of 1,200 feet. In Hopewell Township, same county, the Delta Oil Co.'s No. 1, located 250 feet from the south line and 650 feet from the west line of the A. Miller farm, in the northeast quarter of Section 30, pumped 2 bbls. Trenton was tapped at 1,184 feet and oil struck at 36 feet in, the total depth of hole being 1,220 feet.

In Union Township, Hancock County, the Rainey Oil Co.'s No. 11 on the William Rainey farm, Section 23, pumped 15 bbls. In Pleasants Township, same county, in the McComb Field, the Bath Township Oil Co.'s test on the northwest corner of the Ada C. Hoy farm, Section 24, pumped 10 bbls., and in Biglick Township, R. Allen has started drilling No. 1 D. Chambers farm, Section 35. In Eagle Township, same county, between Findlay and Lima, Star & Clark are drilling No. 1 Alice Stauffer, Section 5. Porter & Hovis are drilling No. 15 Lem Aurand farm, same section, while Dave Kirk, Jr., and others are drilling No. 13 Eli Gorby, Section 7.

In Lake Township, Wood County, Charles Zeising and others are drilling No. 6 Emil Brendt farm, Section 36. In Webster Township, Johnson, Hummell and others' second well, 60 feet from the south line and 140 from the east line of the Charles Geldine farm, pumped 3 bbls. at a total depth of 1,242½ feet.

Pulling Them Out

A total of 121 old wells are reported to have been abandoned which has kept the pulling machines busy for some time. These wells to a large extent are a part of those purchased by Mack P. Colt, vice president of the National Supply Co. of Lima, from the Paragon Refining Co. There were 14 pulled in Lucas County, 48 in Sandusky County and 59 in Wood County.

In Oregon Township, Lucas County, in the Lima Field, the Paragon Refining Co. abandoned Nos. 1, 2, 3, 4, 5, 9, 10 and 11 John Wiemeyer farm, Section 11; Nos. 1 and 2 J. H. Heckman farm, same section; Nos. 2, 5 and 6 on the William Dickman, same section, and No. 5 Thomas F. Rideout farm, Section 9.

In Washington Township, Sandusky County, the Paragon Refining Co. abandoned Nos. 1, 2 and 3 E. Baker, Section 21; Nos. 1, 2, 3, 4 and 5 H. Avers farm, Section 31; Nos. 1, 2, 3, 4 and 5 Adolph Minich, Section 16; Nos. 1, 4 and 5 Christ Paul, Section 8; No. 5 H. Sanders, same section; Nos. 1, 2, 3, 4, 5 and 6 L. Loose, Section 8, and Nos. 1, 2 and 3 A. Barkhow, Section 8. In Scott Township, same county, the same company did likewise with Nos. 1, 3, 4 and 5 Jennings' No. 1 farm, Section 5, and Nos. 1, 2, 3, 4 and 5 Levi Garm, Section 6. In the same township, the Ohio Oil Co. pulled out No. 15 J. Yesating No. 2 farm, Section 5, and D. J. Bonawit pulled his No. 13 on the Von Thurn & Co.'s farm, Section 18.

In Sandusky Township, Sandusky County, the Ohio Oil Co. abandoned No. 12 Emma M. Hensel farm, Section 7, and the Paragon Refining Co. did the same with Nos. 2 and 3 Amanda Lay farm, same section, and Nos. 1, 3, 4, 5, 7, 8, 9, and 10 J. A. Eisenhour farm, Section 7.

In Troy Township, Wood County, the National Supply Co. abandoned Nos. 3 and 17 on the S. H. Rolfes farm, Section 2; Nos. 2, 3, 4 and 6 Mary Ruswinkle, Section 25; Nos. 2, 3, 4, 5, 6 9 and 10 L. G. Radeloff farm, Section 24, and Nos. 1 and 2 Angeline Myrosa, same section. In Webster Township, same county, the Paragon Refining Co. abandoned Nos. 1, 2 and 4 Theodore Shanks, Section 18; Nos. 1 and 2 M. Loomis, same section; No. 1 Put Loomis, and Nos. 1, 2 and 3 I. Muir, same sections.

In Freedom Township, Wood County, the Paragon Refining Co. abandoned Nos. 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17 H. H. Hille farm, Section 23; Nos. 3, 4, 6, 7, 8, 9 and 10 Catherine Frobese, Section 19; No. 1 O. Kelley, Section 20, and Nos. 1, 2 and 4 John Wegner, Section 19.

In Montgomery Township, Wood County, Aurand & Aurand abandoned Nos. 4, 5, 6, 7, 8, 9 and 10. W. H. Plantz farm. Section 30. Hollis O'Caston pulled out his No. 7 on his own farm. Section 24, and the Ohio Oil Co., did the same with No. 14 P. Biggs, Section 14.

Indiana

Only one completion was reported for the week from the Indiana Field, and that was a duster drilled by J. W. Young and others in a test on the southeast corner of the August Black farm, in the southeast quarter of Section 36, Center Township, Gibson County, at a depth of 1,494 feet. This in the Princeton district.

In Madison Township, Pike County, the Murphy Oil Co. of Pennsylvania, abandoned No. 5 Mary E. Sutton farm, Section 36, and E. E. Thorn, attorney, did the same with No. 2 on the S. A. D. Barker farm, Section 6.

Illinois

Five completions were the result of the drill in the Illinois fields during the week, the best of which was Wirebaugh and others' test in the southwest corner of the J. C. Robinson farm, mapped as the L. Lidale, in the southeast quarter of Section 15, Wabash Township, Wabash County, which showed a production of 75 bbls. at a depth of 1,465 feet.

In Sandoval Township, Marion County, the Fox-Alsbach Oil Corp.'s test in the southwest corner of the A. E. Benoist, in the southwest quarter of Section 4, was a dry hole at a total depth of 1,608 feet.

In Casey Township, Clark County, Gillette and others' second test on the northwest corner of the William Reisinger farm, in the southeast quarter of Section 25, pumped 30 bbls. In Martinsville Township, same county, Rhodes & Keith's No. 3, located 660 feet from the north line and 200 from the west line of the D. Morgan farm, Section 30, pumped 25 bbls. from the stray sand at 1,410 feet. In Parker Township, W. F. Small's test on the S. Turner farm, 200 feet from the south line and 795 feet from the west line, in the southeast quarter of the northwest quarter of Section 15, was a duster at a depth of 500 feet.

Central Ohio

A total of 17 wells were completed in the Central Ohio Field during the week, with one oil well of 30 bbls., 3 dry holes and 13 gas wells. Only a slight let up is noticed in new work, although 6 new locations were made and 10 new wells started drilling.

In Orange Township, Ashland County, the Logan Gas Co. drilled in a light gas well in No. 9 on the William Monteith farm, Section 7, and a fairly good gas well at a test on the Hilda Kline farm, Section 28, Green Township, same county.

In Grafton Township, Lorain County, the East Ohio Gas Co.'s test on the Robert Nesbitt farm, Lot 77, was a dry hole. In Columbia Township, the Ohio Fuel Gas Co. brought in a fair gas well at a test on the C. & E. Harold farm, Lot 29, while the Logan Gas Co.'s No. 1 on the S. A. Ives 50 acres, Lot 74, same township, is above the average gas well at a depth of 697 feet.

In Cannan Township, Wayne County, Burton-Morgan & Stephens' No. 1 J. Bowers farm, Section 22, is a fair gas well. Arthur & Mills also have a fair gas well at its second test on the F. A. and M. Snell farm, as has the Klise-Eckstein-McCann Co. in its test on the M. Younker, Section 23.

In Monroe Township, Holmes County, the Ohio Fuel Gas Co. found an excellent gas well at its No. 3 on the Charles Barnes, Section 8. The East Ohio Gas Co. also drilled a good gas well in a second test on the C. M. Shanks, Section 10, and another in a test on the Albert R. Mackey, Section 5.

In Newcastle Township, Coshocton County, Bell Brothers and others' No. 1 on the Cassingham-Heubrig 75 acres, Section 11, produced around 100,000 feet of gas from a depth of 600 feet.

In Franklin Township, Jackson County, the Ohio Fuel Supply Co. found only a light gas well at its test on the Stewart-Cherrington, Section 35. A gas well is reported drilled by the Ohio Fuel Gas Co. on the Emma Coal Co.'s farm, Section 36, Washington Township, same county.

In Carthage Township, Athens County, the Shady River Oil & Gas Co.'s No. 10 F. W. Chapman, Section 29, is reported dry in the Maxon sand at 1,100 feet, while the Ohio Fuel Gas Co. hit a nice gas well at a second test on the Oscar Clark 163 acres, Section 6. In Rome Township, Dunham Brothers' No. 1 E. Bryon farm, Section 32, is reported dry in the Big Injun sand at 1,158 feet.

In Strongville Township, Cuyahoga County, the East Ohio Gas Co. reports a dry hole in its test on the T. Francis farm, Lot 97.

New Work Starting

In Montville Township, Medina County, the Ohio Fuel Gas Co. is drilling at its test on the J. K. Nold, Section 30. In Cannan Township, Wayne County, Charles Hower and others have started the drill at No. 2 on the northwest corner of the R. C. Cockrell 83 acres, Section 5, and the Ohio Fuel Gas Co. is drilling No. 2 E. J. Betz 61 acres, Section 16, also No. 2 on the S. L. Whonsettler 165 acres, Section 20.

In Monroe Township, Holmes County, the East Ohio Gas Co. has started the drill at No. 2 Albert R. Mackey, Section 6, and made a location for No. 5 on the Thomas P. Connor 34 acres, Section 13. The Empire Gas & Fuel Co. started drilling No. 3 Oscar Korns 100 acres, Section 3.

In Kilbuck Township, Holmes County, A. L. Harbison and others are drilling No. 6 on the northwest corner of the Eph Carpenter 79 acres, Section 8.

In Carthage Township, Athens County, the Ohio Fuel Gas Co. is drilling No. 3 on the Oscar Clark 163 acres, Section 6, and locations for No. 4 same farm, as well as No. 2 on the Dana T. Burns 256 acres, Section 4, and the No. 2 on the Union Trust Co.'s land, same section. The Ohio Fuel Supply Co. is drilling No. 3 on the Thomas Bond 18 acres, Section 5. In Rome Township, same county, the same company made a loca-

(Continued on Page 78)

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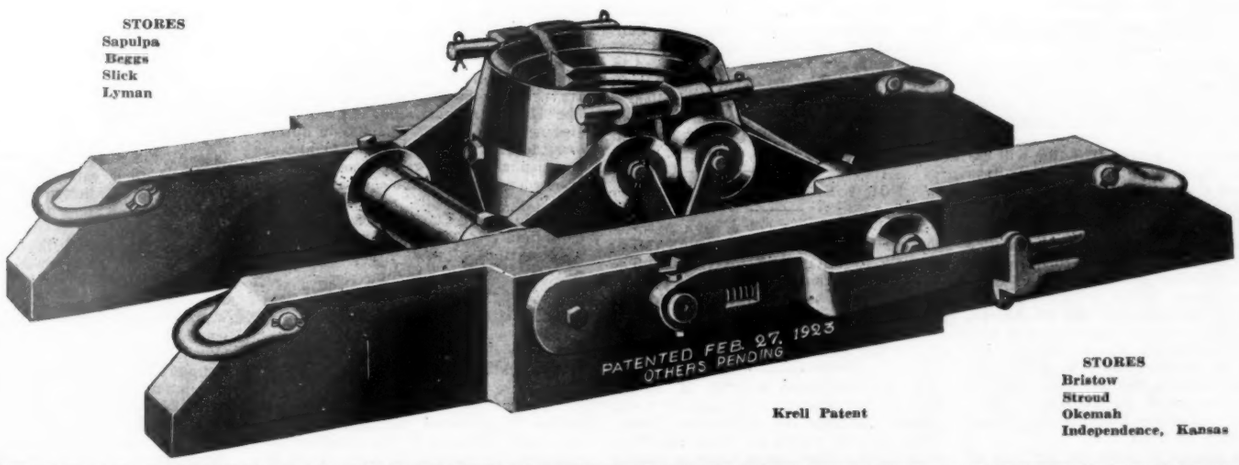

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Okemah
Independence, Kansas

NATURAL GAS DEVELOPMENTS

Present Fair Value Made Rate Basis in Gas Case Decision

OKLAHOMA CITY, Okla., Dec. 27.—In reversing a decision of the Corporation Commission and remanding the case with instructions, the Oklahoma Supreme Court, in an opinion filed in the case of the Western Oklahoma Gas & Fuel Co. vs. the State of Oklahoma and the Corporation Commission, holds that a public utility is entitled to charge a rate for its service that will produce a reasonable return upon the present fair value of its investment used and useful. The court interprets "present fair value" to mean that valuation which, during the period of time likely to be covered by the duration of the rate to be fixed, will fairly represent the average value of the property. The court also holds that, "in determining the present fair value we must consider the original cost of the property. Generally speaking, the degree of influence which a consideration of the original cost of the property should have upon the court in determining the present fair value is inversely in proportion to the lapse of time and changes in prices and values since the property was constructed."

The proper expense of operating a utility during the ensuing years to be covered by the rate to be fixed may be determined largely by the experience of the company in the past, the court holds. When such cost is fair upon its face and it does not appear that the conditions surrounding any such item of expense were unusual or different from probable future necessities, the burden is upon the party attacking such expense to show that the estimate of a similar expense for the future would be unfair.

Other findings are that extraordinary expense in one year should be prorated over a period of years; that when excessive leakage is shown the future cost of operation will be estimated on the basis of the leakage experienced by the company in the past. Overhead expense in construction and going value are elements to be considered, the amount to be determined by the evidence in the case. Working capital must also be made a part of the valuation for rate making purposes. The court also holds that greater weight should not be given to the testimony of appointees and employes of the commission than to evidence presented by witnesses produced by the utility where such witnesses are of equal understanding and credibility.

HOPE GAS CO. PLANS $5,250,000 EXTENSION

PITTSBURGH, Pa., Dec. 27.—The Hope Natural Gas Co. has completed its plans for extending its gas lines to the southwest counties in West Virginia. It will be the biggest project of the kind for a number of years. The line will extend from the present terminus of its lines in Gilmer County through a half dozen counties to the southwest.

The Hope Natural Gas Co., primarily a producer of natural gas, also distributes considerable gas to domestic consumers in towns and other communities in West Virginia, among which are Parkersburg, Sistersville, Mannington and St. Marys, while large quantities of gas are also supplied to the Peoples Natural Gas Co. for delivery to its consumers in Pittsburgh and other towns in Pennsylvania, and also to other companies for delivery to their domestic consumers in Cleveland and other towns in Ohio.

For a number of years the territory of the Hope Natural Gas Co. has covered about 20 counties in the northern and central part of West Virginia, where it has drilled approximately 5,500 wells, a number of which have been abandoned because of nonproduction, but at the present time the company has several thousand active gas wells throughout its territory. This territory has been drained to a large extent while the demand for domestic consumption in the communities supplied has constantly increased, and although the company has known for some time that considerable gas is to be obtained some distance south of its present teritory, the cost of reaching this additional production has hitherto been prohibitive.

In an endeavor to obtain additional supplies of natural gas to meet the demand of the increasing number of domestic consumers, the company has now decided to reach out for this gas to the south and will spend $5,250,000 in the construction of a pipe line. The line will be approximately 100 miles in length, the greater part of which will be of pipe 20 inches in diameter, and wil lbe a tremendous undertaking due to the extreme ruggedness of the territory through which the line will be laid, in many sections, the line going over mountains 1,000 feet in height, through deep ravines and under rivers.

The gas of which the Hope Natural Gas Co. expects to obtain through this undertaking is gas of low pressure that the oil companies operating in that section of the State have not been able to utilize heretofore, and an additional supply is expected from that at present going to carbon companies, whose plants heretofore used for the manufacture of carbon black from natural gas will be made available through the Hope Natural Gas Co. for domestic consumption. Along this proposed line will be erected two large compressor stations in order that this low pressure gas of the oil companies and carbon companies may be picked up and transported to market.

Natural gas coming to Pittsburgh from this section after the new line is constructed will travel a distance of more than 225 miles, and while the project is a tremendous one, the company is influenced in making the large expenditure by reason of the additional supply of natural gas which will be available to domestic consumers of West Virginia, Pennsylvania and Ohio, this additional supply being estimated at 30,000,000 to 50,000,000 feet per day. It is expected the line will be completed late next summer.

GAS FOR LUBBOCK, TEXAS

The Lubbock (Texas) City Commission has granted a natural gas franchise to Samuel C. Arnett, president of the Citizens National Bank of Lubbock, who purposes piping gas there from the Panhandle Field and selling it at a flat rate of 50 cents per 1,000 feet. Interested in the project with Mr. Arnett are J. O. Jones of Lubbock and H. A. Heller, a California geologist, who have leased 4,000 acres of land near Lubbock and will drill a test well for gas or oil.

FORM NEW ASSOCIATION

The New Mexico Oil & Gas Association was formed at Farmington, N. Mex., recently by oil men of that State. The new organization will work in unison with other like associations in other States.

TO USE WASKOM GAS

R. R. Sutherland and W. H. Moorefield of Shreveport, have applied for a natural gas franchise at Longview, Texas. They promise piping gas from the Waskom Field. They have made a similar proposition to the City Council at Tyler, Texas.

GAS HEARINGS SCHEDULED

A petition filed with the oil and gas division of the State Railroad Commission alleges that existing rates for natural gas in Tulsa are unreasonably high and illegal, and asks a temporary order reducing domestic rate from 60 cents to 40 cents and industrial rates from 25 cents to 15 cents, pending complete investigation and permanent adjustment. The case is set for Wednesday, December 31. Testimony is still being taken in the action to reduce city gate rates of the Oklahoma Natural Gas Co., devoted to cross examination of E. B. Black, valuation engineer, representing the commission. Hearing on application of McAlester Gas & Coke Co. for increased rates has been in progress for one month, and has not yet been concluded. Evidence on life of Quinton gas field and valuation figures of the company's engineers has occupied the attention of the commission. Most of the evidence to be presented by the city of McAlester and the commission is yet to be introduced.

TANK BASIS OF SUIT

NEW YORK, Dec. 26.—A suit by the town of Greenburgh against the Westchester Lighting Co. has been entered in the Westchester County Supreme Court at White Plains. The suit seeks to restrain the lighting company from continuing a large gas container recently completed on land acquired by the company for that purpose on the Tarrytown-White Plains Road between the village of Elmsford and White Plains. The container is 135 feet high, with a capacity of 1,000,000 feet of gas, and 2,000,000 gallons of water. Greenburgh seeks also to prevent the construction of several larger gas tanks.

The town alleges the gas container is a menace because of air pollution and possible flood, and also because of fire and explosion hazard.

The tank is alleged to have been constructed in violation of a zoning ordinance and without permission of the Board of Health. The lighting company denies the allegations.

TO RELIEVE GAS SHORTAGE

OKLAHOMA CITY, Okla., Dec. 27.—The Corporation Commission has issued a temporary order to relieve a gas shortage at Holdenville, Okla. The Holdenville Gas Co. filed a complaint alleging that the Hughes County Pipe Line Co., from which it purchased gas, had not been delivering gas at sufficient pressure, but has been delivering it at pressure of only 200 pounds. It is also alleged that the pipe line company had violated its contract with the Holdenville company for first call upon all the gas it sells and had been supplying drilling concerns and others in the field. The Hughes County Pipe Line Co. denied negligence. The commission authorizes the Holdenville Gas Co. to arrange for such additional gas as necessary. It also orders the pipe line company to turn into the Holdenville pipe line all its available gas. The emergency order is immediately in effect and will remain in force until final disposition of the controversy.

STROUD GAS FRANCHISE

At a special election, the citizens of Stroud, Okla., voted 401 to 22 in favor of a franchise requested by the Stroud Gas Co. The franchise runs 25 years and prescribes a maximum rate for gas of 35 cents per 1,000 feet. It also provides for a maximum pressure at all times of not less than 4 ounces and for a meter deposit of not less than $5 for each consumer.

NECESSITY OF CAUTION WITH REGARD TO GAS

Necessity of caution in handling natural gas is again being emphasized by a number of accidents occurring in Oklahoma, some of which have proved fatal. At Hominy, Hazel Mae, 14-year-old daughter of Mr. and Mrs. C. D. Thurston, was found dead from carbon monoxide poisoning in the bath room of her home.

A very unusual accident happened near Blackwell, when Dwight Vandagriff, 9-year-old son of Mr. and Mrs. B. R. Vandagriff, near Three Sands, died of asphyxiation and a younger brother was gassed and remained unconscious for an hour as a result of a break in a gas line through the back yard of their home. When discovered by their grandmother, the two boys were on the ground close to the leak in the main.

A meter house of the Kay County Gas Co., just east of Apperson, was destroyed by fire when a truck driver struck a match to find a lock which he had dropped near the door. The free gas around the building became ignited and the entire building immediately was enveloped in flames. L. D. McKee, an employe, was severely burned.

CARBON BLACK PLANT DISCUSSED FOR WASKOM

Rumors of negotiations for the establishment of a carbon black plant in the Waskom shallow gas district of Harison County, Texas, and western Caddo Parish, Louisiana, have been agitating citizens. It is rumored in Waskom that the proposed plant will be located on the Louisiana side of the line, but Louisiana carbon plant regulations are so onerous it is hardly like such a plant will be built except by taking advantage of the "waste gas" clause of the regulations, under which it is possible to interpret "waste gas" as applying to the gas after its gasoline content has been removed, but the Louisiana conservation department has expressed its attitude as "doing everything in our power to prevent any more carbon plants."

Texas restrictions on burning gas for carbon manufacture are equally rigid and location of the proposed plant on the Texas side of the line is as problematical. Whether it would be possible to pipe gas from the wells on the Texas side of the field to a plant located in Louisiana, or vice versa, remains to be seen.

DEER CREEK GAS FOR ENID

Enid Okla., is believed to be assured of a plentiful supply of gas since the Deer Creek Pipe Line Co. brought in another 18,000,000-foot gasser to augment the supply the company now has to sell to the Oklahoma Gas & Electric Co. A representative of the latter company tells of a trip to the new well: "Wihle we were several miles from the well the noise was very noticeable, and as we approached nearer the noise became deafening; in fact, all the employes working around the well had their ears stuffed with cotton. This well was allowed to run unchecked for at least 24 hours to allow it to clean itself out, as it was impossible to run tools in the hole with the pressure at 1,700 pounds. This well is 4,035 feet deep and the gas is very hot, running about 150 degrees as it comes from the well. According to gas men, this is unusual, but all of the wells in the Deer Creek Field have this characteristic. The company has four wells connected with a maximum capacity of 50,000,000 feet every 24 hours. The State allows 25 per cent of this to be used, which is 12,500,000 feet. As the maximum daily consumption in Enid is 4,000,000 this will give us a big reserve supply for winter days."

HAPPY NEW YEAR

CHESTNUT & SMITH
CORPORATION
GENERAL OFFICES-CHESTNUT & SMITH BLDG.- TULSA, OKLA.

EQUIPMENT AND SUPPLIES

ELECTRIC TIME BOMB FOR EXPLODING NITRO

Oil producers have for a long time recognized the need of some device which could be placed in a well along with a charge of nitroglycerin and which, independent of wires or other external means, could be depended upon to explode the nitro at any desired time thereafter. In a booklet entitled "Oil Well Shooting, Past and Present," the Zero Hour Torpedo Co. of Casper, Wyo., describes its new electric time bomb which it claims has filled this need so satisfactorily in the Salt Creek Field during the past 3 months that it has been adopted as standard by several of the largest producing companies in the field.

The bomb consists of a timing mechanism, a battery, an explosive charge, all inclosed in a water-tight and lodestone-proof shell. Dependability and safety are the two features of design which are emphasized. Powerful battery, platinum switch, sturdy watch, extra caps, large explosive tube all insure dependability.

Personal safety of the operator has been made of first importance. Winding and setting are done before caps or explosives are brought near; then case is closed so that every part is protected from accidental contact—the ends of the connecting wires alone being exposed for attaching the caps.

The Zero Hour bomb is particularly recommended by the manufacturers for use in "cavey" ground where it is desired to raise casing or swab the well after the shot is placed, but before it is exploded. It is also being successfully and economially used for detonating "squib shots" in cleanout work, in shooting off casing, fishing, and in many other special shooting jobs.

STEEL TANKER BARGE WELDED IN ONE PIECE

A one-piece steel tanker barge, welded throughout by the electric arc, has been launched at Providence, R. I. This barge, built by the Saxe Providence Boiler Works, will be used by the Pennsylvania Petroleum Products Co. for transporting oil between Fall River, Providence and New Bedford, Mass. It is the first electrically all-welded barge of its kind constructed in this country.

The tanker is built around two cylindrical oil tanks 8 feet in diameter and 67 feet long, each having a capacity of 26,000 gallons. The barge is 76 feet long, 21 feet wide and 11 feet deep, barge and tanks having a total weight of 70 tons. The barge is divided into four compartments with three water-tight bulkheads. Oil will also be carried in the two middle sections of the hull around the outside of the tanks. The sections will be reserved as bulkheads containing air for buoyancy purposes.

The barge was entirely constructed by the electric arc welding method, using three General Electric welding equipments. One was used for tacking with a fitting-up crew and the other two for welding. The largest number of men used at any one time was six. The builder estimates that, were the barge constructed in the ordinary riveting manner, a force of 18 men would have been required. A further comparison, based on a record of costs, shows that, excluding the costs common to both methods, the electrically welded barges could have been built for the price of one riveted barge, according to computation of the General Electric Co.

HANDLING AXELSON PRODUCTS

The Frick & Lindsay Co., Pittsburgh, Pa., is now handling all of the products of the Axelson Machine Co., in the Pennsylvania territory.

HEAVIER CONSUMPTION OF STEEL IS EXPECTED DURING YEAR 1925

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 29.—There has been no material change in pipe trade conditions in the past week. Pipe mill operations have been at 75 to 80 per cent of capacity, or at practically as high a rate as shown by the entire steel industry, and this is unusual for the time of year, tubular goods usually having a lull at this time.

Buying ot oil country goods has been of conservative character in the past few weeks, only definite necessities being covered, but this has run up a fair tonnage, and a distinctly good tonnage for this time of the year, when oil country goods are almost invariably very quiet. Mills expect oil country jobbers to begin stocking up shortly in rather an extensive way, mills having no doubt but that drilling prospects for 1925 are very good.

Jobbers in merchant pipe have been buying from hand to mouth lately, to keep down inventory, but the purchases have been of good volume, jobbing distribution being heavy for this time of year. Many jobbers have begun placing orders for shipment after January 1.

Prices of tubular goods are firm and there is no prospect of any change.

Finished steel prices in general are unchanged in the week. Plates show a stiffening tendency, there being more business, of miscellaneous character, done at 2.00c, while 1.90c is still possible for large buyers.

Former prices for semifinished steel have suddenly disappeared. Mills have sold all they wished to sell at the old prices, not caring to make very heavy sales, on account of the heavier requirements of their own finishing mills. Old prices, prevalent for weeks, were $35.50 for standard billets, with $5 extra for forging quality, $35.50 for slabs and $37 for sheet bars and small billets. Just what could be done now is not determined, the withdrawal of old prices being so recent, but doubt is expressed whether billets and slabs could be secured at $37, or sheet bars and small billets at $38. One mill has put its price on sheet bars at $40 and appears indifferent to making any further sales until it comes time to close second quarter business.

The steel market as a whole has made unusually interesting history in the past year. It opened with buying very active indeed, with prices firm though not overly strong. The mills got very well fitted with business, and then limbered up with unexpected facility, reaching a very high producing rate in a short time, even though they had but recently eliminated the 12-hour day, which change it had been thought would limit the labor supply. In March, in fact, production of steel ingots made a new high record, passing the rate of April the preceding year. Then there was a remarkable slump in production. Buyers found their business prospects were not altogether as good as they had thought, and also found that mill deliveries had been heavier and quicker than buyers expected when they placed their orders. The next three months, up to July, were months of sharp liquidation in buyers' stocks. Some time in July production turned upward, as stocks were fairly well liquidated. By election time there had been a very thorough liquidation indeed, and then, as buyers took a very favorable view of the future, buying increased sharply and mill operations increased correspondingly, presenting the unusual phenomenon of production increasing as the year closed, when ordinarily there is a seasonal decrease.

At the beginning of the year steel ingot production was at about 40,000,000 tons a year. In March it rose to a trifle over 50,000,000 tons, and then the subsequent slump carried it down to a rate of about 22,000,000 tons in the fore part of July, while the rate in December has been fully 43,000,000 tons. With all these gyrations in steel production, the rate of actual ultimate consumption of steel has varied but little during the year, and was but little below that of 1923. Average consumption in the two years was about one-third greater than in the two best years before the war, 1912 and 1913, and was well above the average in the your years, 1919 to 1922, inclusive. On all hands it is believed 1925 will show still heavier consumption.

NEW CATERPILLAR TRACTOR

A new 5-ton "Caterpillar" tractor, which contains many features especially adapted to the difficult conditions encountered by oil field operators has recently been announced by the Holt Manufacturing Co., with factories at Peoria, Ill., and Stockton, Cal. The outstanding feature of the new design is unit construction, three units, the engine, transmission and track units, forming the complete tractor. The motor is a 4-cylinder, valve-in-head type; bore 4¾ inch; stroke 6 inches; 1,000 r.p.m.; gear driven fan and water pump; full force-feed lubrication. The transmission is selective gear type with three speeds forward and one reverse. Forward speeds are: First 1.75; Second 3; third 4.25 m.p.h.; reverse 2. In each speed, power is applied to the sprocket with but three gear contacts. Steering clutches provide independent, yet positive drive to each track; no differential is employed. A new and unique feature is the drive link and spring construction, which permits the centers of the drive sprocket and track idler to approach each other so that the drive sprocket can slip over the space blocks, should an obstruction gain access to the track unit. The track shoes and rails are cast integral of high carbon steel, specially heat treated. The track shoes are 12 inches wide.

VALVES ARE DESCRIBED

The entire line of Homestead Quarter-Turn valves is described and illustrated in the new catalog for 1925, being described by the Homestead Valve Manufacturing Co., of Homestead, Pa. In this edition, the Homestead-Protected Seat Globe Valve is inaugurated. It is the latest addition to the company's line. A feature of this Protected Seat Globe Valve is that the throttling surfaces of the seat and disc are entirely separated from the seating surfaces by reason of the fact that one sleeve telescopes over the other. Other products manufactured by the company and listed in this catalog are the Homestead-Hovalco Boiler Blow-off Combination, the Homestead Lubricated type quarter-turn valve, check valves and hydraulic operating valves with the protected seat principle. A recent development is the full round opening for high temperature refinery service, chemical industries, etc.

TO BUILD ALABAMA PLANT

The Reeves Brothers Co., of Alliance, Ohio, has recently purchased 40 acres of land at Birmingham, Ala. A new plant to cost approximately $1,000,000 has been projected with the intention of having it in production early next year. The Birmingham plant will specialize in the larger requirements of the oil industry in the Southwest, especially in field and refinery tanks.

CLAIM MANY ADVANTAGES FOR SPIRAL DRILLING BIT

A new spiral drilling bit that, it is claimed, will drill faster and straighter than other types, is being manufactured and marketed by the Leidecker Tool Co. of Marietta, Ohio. It is the invention of Charles Harrison, an oil well driller employed in the Wyoming fields, and is fully protected by Government patents.

The bit, as the name implies, is spiral in shape, not unlike an ordinary wood augur in principle, except that it presents 4 shoulders as a drilling surface. The most important claim made for it is that it will drill an absolutely straight hole. When this bit is being used in drilling, a substem almost the full size of the hole is run above the regular drilling stem, thereby serving as a guide to hold the tools in exact perpendicular position. The spiral shape of the bit naturally gives added whirl to the tools and this serves to prevent a flat hole.

Several large companies have placed the stamp of approval on the new invention, according to the company, and orders already placed by the Midwest Refining Co., one of the largest operating concerns in the Wyoming fields, have required 450,000 pounds of steel. That company has equipped 50 strings of tools with the spiral bit.

The bit will be manufactured in all sizes and lengths for which there is a demand in the oil country. Among the advantages of the tool claimed by the manufacturers in addition to those mentioned are that it will mud off wells, preventing cave; will keep mud mixed; will will drill better in a wet hole; will drop more freely and raise more easily; will reduce joint troubles and relieve jars of considerable strain.

DEVICE TO RECLAIM OIL

A device for reclaiming the waste oil which is carried away in great quantities by the sewers of the large refineries of the country, and which has numerous other oil industry uses has been perfected by J. Kindle of the Kindle Seperator Co. of Pitman, N. J.

The principle of the device incorporates a new departure in the construction of separators, consisting of a series of baffles so constructed as to work automatically and continuously, and to require a minimum of attention. The size of the separator can be varied to fit any size of outlet.

The Bureau of Mines is said to have the device under consideration for possible use on oil tankers and other oil burning vessels to eliminate the oil sludge which is discharged on the high seas.

Patents have been granted on the separator covering 21 claims.

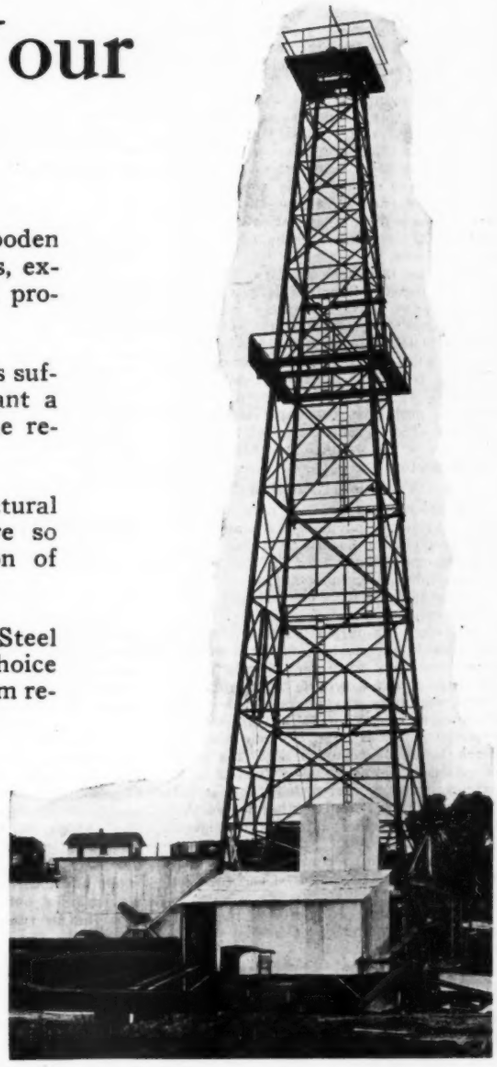
Put "IDECO" Back of Your New Year Resolutions

Resolved— that 1925 will see the last of obsolete wooden equipment on my wells. It is dangerous, expensive, and a detriment to economical production.

Resolved— that past experience with one steel rig is sufficient proof of their economy to warrant a complete steel drilling program, and the replacement of wood with steel throughout.

Resolved— that the advantages of galvanized structural steel rigs over other existing types are so numerousand evident that the selection of structural steel is only a matter of common sense.

Resolved— that International "IDECO" Galvanized Steel Derricks and Equipment is the logical choice for any operator who believes in maximum results at minimum costs over a long period of time.



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The largest company devoted exclusively to the manufacture of steel (galvanized) equipment for the oil, gas and artesian industries.

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Valuation of Oil Producing Properties

Value For Different Purposes Considered, Estimates Reserves Discounts and Other Factors Entering Into Appraisal

By J. L. Darnell

Until a comparatively short time ago oil producing properties may have been said to have no value at all save in purely speculative sense.

Nobody seemed to know very much about them except that the wells were producing oil and the whole business was on a more or less day to day basis. The great fortunes made in oil late in the nineteenth century were not acquired through its production but in transportation, refining and marketing. Oil production was too hazardous to be dignified by calling it a business. It was regarded as a gamble, a little better perhaps than poker or roulette, about on a par with horse racing, but not quite so good as gold or silver mining. Certainly there was nothing in the business to attract capital, and as a consequence few ever gave it any study.

By the beginning of this century the oil business was a business all right, but the producing end was still a more or less questionable occupation and was in the hands of so-called rough-necks. There was plenty of oil to supply the demand. The refiners and marketers—the business men—were perfectly content to leave production in the hands of the speculators and gamblers.

With the twentieth century, however, all is changed. Remarkable mechanical developments have immensely increased the demand for oil products. Oil production is today a business; big business if you will. So there has grown up within a few years a school of petroleum engineers who have made a study of the various problems connected with the business of oil production, not the least of which is the valuation of oil producing properties.

Valuations Classified

Valuations or appraisals may be made for a variety of purposes. An appraiser may be trying to ascertain

Exchange value.
Consolidation value.
Production value.
Tax value.

Whatever the purpose of the valuation, the main factors to be considered are the same, and they were very tersely stated 10 years ago in a report of the appraisement committee of the Independent Oil Producers Agency of California. This committee under the chairmanship of Mark L. Requa reported that "the value of oil lands is the value of the oil to be extracted and marketed, less the costs attendant thereon," and further stated that the committee had carefully considered these facts:

1. That from each property there will be ultimately produced a certain total quantity of oil.
2. That in the production of that oil a certain total quantity of money will be expended.
3. That a certain total amount of money will be received from the oil.
4. That the total net receipts will be the total gross receipts less the cost of development and production.
5. That the present value of the net receipts must be such a value that when invested by a purchaser it will be returned with 8 per cent interest additional during the life of the property.

Increasing demands for crude, with consequent increase in sharpness of competition and, more than any other single element, the inception of the Federal income and excess profit tax laws, forced attention to the fact that valuations were necessary and essential and that the principles set out by Mr. Requa's committee were correct and could and should be applied to all properties.

Various writers on the subject have said that valuations made for different purposes will be different. Prof. Roswell Johnson in his book on Oil and Gas Production says:

"An oil property may be said to have two values, or to have value in two different senses. First, there is the exchange value, that amount for which it can be sold; and second, its productive value, or the amount of present capital which the income can repay with that rate of interest necessary to attract capital to such ventures, including the consideration for risk. These two values are seldom the same, and the skillful appraiser endeavors to ascertain each value, so that if the exchange value is higher he can recommend the sale of the property; if lower, its purchase."

Or to state it another way, it would appear that an oil property may have a different value for exchange—for consolidation—for productive value and for Federal Tax value and for either of these a different value for buying and selling.

Certainly if true all this would be very confusing and it seems to me that the very word value is outraged by such a multiplicity of definitions.

Value is value, and while there may be difference of opinion as to the elements which make up the whole, as well the comparative weight accorded each, for whatever the purpose the valuation is made the answer should be the same.

One of the soundest of economic laws is that the value of anything is the present worth of prospective earnings. Apply this to oil and we find that an oil property may be said to be worth a given sum where there is a reasonable certainty that it will return that sum plus interest within a given time.

Fundamental Facts

Consequently the problem in the valuation of any oil property is to find out how much money will be gained from the property and how long it will take to get it. That is, that in making a valuation for oil producing property it is necessary to determine

1. Ultimate Recoverable Oil.
2. Development, operating and overhead expense.
3. Equipment Expense.
4. Discount Factor.

The first of these—the estimated recoverable reserves is perhaps the first difficulty encountered, and it is here that nice judgement, the result of experience comes to the fore.

Too much dependence has been placed on the average decline curve method. There is no such thing as an average oil well or an average producing property.

Differs in Districts

In the hard sand districts of Oklahoma and Kansas this method does fairly well, within limitations. In the Gulf Costal fields of Texas and Louisiana, the average curve falls down utterly, as the productive life of a well does not represent the productivity of the sand, but rather the physical limitations of the equipment. This is particularly true in the newer fields and becomes of progressively less importance as the fields grow in age.

In the Electra Field, in North Texas, average decline curves are of no value, due perhaps to the lenticular character of the producing sands and to the extreme difficulty in correlation. From the day the discovery well was drilled in just the horizon of the producing sands nor just at what depth they might be encountered. The drill was likely to find pay at anything from 200 to 2,000 feet and paying wells were drilled within the first year of the life of the field to nearly every depth within the range. New Electra to the present, no one has known methods obviously were necessary.

In the Mexia Fields of Texas wells seemed to decline for a number of months. Then in the summer of 1923 they apparently reached the even level of day to day production. In the early autumn these wells began to increase their daily yield until by January 1 they were producing nearly 20 per cent more oil than on July 1. The estimator must adapt his methods to best fit the case in hand. He must study the causes which make for apparent inconsistencies and be prepared to make proper allowances in his estimates.

The great truth is that a given sand saturated with a given quality of oil should yield under modern methods of operation a certain proportion of that oil within a certain period. If there are are no extraneous factors the decline curve will probably assume the shape of an hyperbola. The great trouble is that the extraneous factor is almost always present and the hyperbola becomes useless, except as a rough check.

Estimating Reserves

One feature usually ignored by appraisers which is a factor is the estimation of recoverable reserves in new properties is the development program of the owner. If the operating company is aggressive more oil will be produced than from the equally good acreage of a dilatory neighbor.

When the estimator comes to consider the expense factors he again meets a multiplicity of problems.

It is easy to say that a 2,000 foot well should be drilled and equipped for a certain sum of money but very seldom does the sum begin to cover all the costs. Consider one of the great operating companies organized to carry on a drilling campaign with men and materials pouring into the field. Is it any wonder it can put down its wells for a great deal less money than the individual operator?

Then consider the same company in the development of a closely controlled field where such breakneck speed is not necessary. Development is going to be done a great deal more cheaply than in the competitive field.

Development expenses in any field necessarily vary with its proximity to transportation, to primary markets, to competition, and more than any other single factor, the age of the field. Seldom does it happen that wells cannot be drilled and equipped very much more cheaply in the second year than in the first. The individual characteristics of the operator must be taken into account. I have seen 50 per cent variation in the costs of two companies operating in the same field under practically the same conditions.

Operating Expenses

Operating expenses likewise are the subject of great differences of opinion. No one questions the actual labor, but how about the maintenance of warehouses, machine shops, etc., employers liability insurance, fire and storm losses, taxes, geological and engineering services, scouts, spuerintendence and the general office overhead. Part of these general expenses should be capitalized, undoubtedly, and just as truly many are legitimate charges against operation. I recall very distinctly when I told one executive his overhead or general expenses were running over 60c

SHIPPING BOARD SEEKING FACTS ON OPERATION OF SECTION 28

Enforcement of Section 28 of the Merchant Marine Act, proposed by the United States Shipping Board, is a matter of vital interest to Mid-Continent refiners engaged in selling products for export and has been actively opposed by the Western Petroleum Refiners Association, Fayette B. Dow, counsel for that organization, having appeared before the Shipping Board, the Interstate Commerce Commission and the House Committee on Mercahnt Marine to present the association's views. Section 28 is that provision of the Merchant Marine Act of 1920 under which special export or import rail rates, under certain circumstances, would be available only when the ocean haul is to be on vessels under the American flag.

The latest development is probably President Coolidge's recommendation in his recent message to Congress favoring suspending action for the time being. The passage of his message devoted to Section 28 follows:

"The procedure under Section 28 of the Merchant Marine Act has created great difficulty and threatened friction during the past 12 months. Its attempted application developed not only great opposition from exporters, particularly as to burdens that may be imposed upon agricultural products, but also great anxiety in the different seaports as to the effect upon their relative rate structures. This trouble will certainly recur if action is attempted under this section. It is uncertain in some of its terms and of great difficulty in interpretation. It is my belief that action under this section should be suspended until the Congress can reconsider the entire question in the light of the experience that has been developed since its enactment."

Additional Information

In the meantime the Shipping Board is obtaining through trade associations additional information relating to the matter, in advance of any further general hearings. This information is being compiled for use of a questionnaire proposed to be sent out by the board. Section 28 of the Merchant Marine Act follows:

"That no common carrier shall charge, collect or receive for transportation, subject to the Interstate Commerce Act, of persons or property, under any joint rate, fare or charge, which is based in whole or in part on the fact that the persons or property affected thereby are to be transported to, or has been transported from, any port in a possession or dependency of the United States, or in a foreign country, by a carrier by water in foreign commerce, any lower rate, fare or charge that that charged, collected, or received by it for the transportation of persons, or of a like kind of property, for the same distance, in the same direction, and over the same route, in connection with commerce wholly within the United States, unless the vessel so transporting such persons or property is, or unless it was at the time of such transportation by water, documented under the laws of the United States. Whenever the board is of the opinion, however, that adequate shipping facilities to or from any port in a possession or dependency of the United States or a foreign country are not afforded by vessels so documented, it shall certify this

(Continued on Page 74)

CAMEL HAIR BELTING

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and Powers

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JONES & LAUGHLIN
Tubular Goods

1-1-'25

TODAY, for the first time in a hundred years, men are dating their letters 1-1-'25. Another hundred years will roll around before that date again becomes correct.

The very fact that the first two figures of the year may be omitted without confusion is testimony to the tragic brevity of man's sojourn in what Montgomery termed this "vale of tears."

May '25—this '25—be then a prosperous and successful year in the lives of those of us who now dwell here.

In the scheme of things as Frick-Reid sees it there is neither time nor incentive for anything but timely, human, helpful SERVICE.

The list of Oil Country Equipment on this page tells its own eloquent story.

Here is, then, to 1-1-'25. Long live Old King Petroleum.

Complete Cable Tool Equipment—F-R Electric Light Plants—Warren Steam Engines—Johns-Manville Packings—Carbic Oxy-Acetylene Welding and Cutting Apparatus—etc.

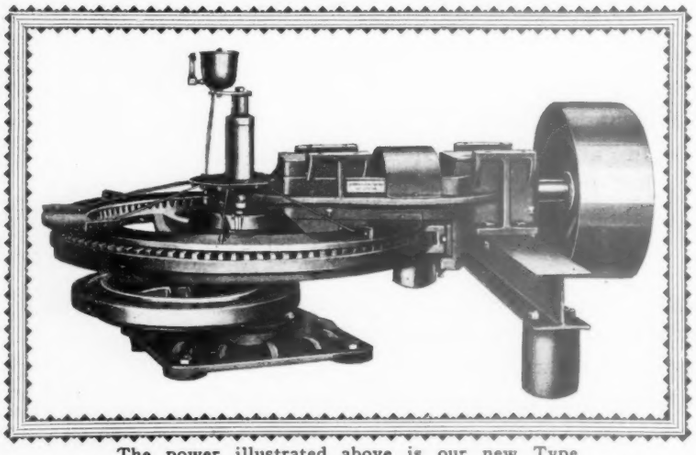
The Frick-Reid Supply Co.

Tulsa, Okla. **Pittsburgh, Pa.**

West of the Mississippi—Stores Everywhere

In Oil Country Equipment the most HUMAN Organization in America

The Reid Underpull Geared Power



The power illustrated above is our new Type PG Underpull Geared Power with one eccentric. This power is the same as the two eccentric type but having only one eccentric.

The lubricating system of a pumping power is important as upon its efficiency depends the amount of service which may be obtained from the power.

The oiling system on the Underpull Geared Power is very efficient. Lubrication for the two drive shaft bearings is furnished by ring oilers, one for each bearing, which keep the bearing operating in a flood of oil. A large oil tight reservoir is incorporated in each bearing box which holds 3½ gallons of oil.

The gear and eccentric hubs are oiled by a gravity system. Oil is fed from an oil bowl on top of the shaft to an oil ring on the main gear hub, the quantity of oil being regulated by a pet cock. The lubricant flows down along the shaft, lubricating the gear and eccentric hubs. Leads also conduct oil to the eccentric rings.

The gear and pinion are lubricated by grease or heavy oil, a ring cast around the outside of the gear preventing the grease from falling to the floor.

With the oiling system used on this power, sufficient oil being supplied, there should be very little wear on the bearing surfaces. If wear does occur, however, the drive shaft bearings and gear and eccentric hubs are bronze bushed and these bushings can be easily replaced. This is an important feature as it is not necessary to go to the bother and expense of rebabbitting bearings.

Write for our new Bulletin No. 29
It contains a complete description of this power

JOSEPH REID GAS ENGINE COMPANY
OIL CITY, PENNSYLVANIA, U. S. A.

Branch and Agencies: Marietta, Ohio; Logan, Ohio; Newark, Ohio; Ft. Recovery, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Bradford Supply Co., Robinson, Ill.; Frick & Lindsay Co., Bradford, Pa., and Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Cal.; Oklahoma, Kansas, Texas, Arkansas and Wyoming; Frick-Reid Supply Company, Tulsa, Oklahoma, and Branches.
BRANCH SHOP, TULSA, OKLA.

CALIFORNIA FIELDS

(Continued from Page 52)

Flowing through a ½-inch bean under a pressure of 190 pounds, this new well tanked 332 bbls. of 19.2 gravity oil which cut 2 per cent. No. 56 Torrance of the same company is in the oil sand at 3,575 feet and, since the oil string is scheduled to be run in tomorrow, an early completion is anticipated. The Petroleum Securities, in finishing well No. 14 on Kleinmeyer Lease A, increased its production 76 bbls. a day, but the output was rather disappointing, since the oil only tested 16.4 degrees and showed a cut of approximately 20 per cent. This new producer was brought in from 3,835 feet, after being finished with a 6¼-inch oil string landed on bottom, and, although the production shows a rather large cut, it may clear up after being on production for a week or 10 days. No. 20 Poggi of the General Petroleum was good for 26 bbls. upon completion at 3,750 feet. The output from this well is also affected by water but has an excellent chance to clear up.

The Chanslor-Canfield Midway Oil Co. ran into a bad fishing job in its deep test, No. 1 Francis, and it looks as though the hole may be lost. While drilling ahead at 6,536 feet, a twistoff left about 6,000 feet of drill pipe in the hole and a complete recovery looks doubtful. Officials of the Lora J. Oil Co. are of the opinion that this company's deep test, No. 1 Lomita, drilled to 4,781 feet, will be on production within the next 30 days. It is the intention of the Lora J. to plug back 80 feet, since tests indicate this is apparently the source of entrance.

The Shell has reached a depth of 5,375 feet in No. 2 Kettler, another deep test, but has not yet picked up any showings of importance. The Shell is abandoning No. 1 Keystone as unproductive at 3,842 feet and has suspended work on No. 1 Dolores, another outpost at 3,761 feet. The Standard failed to secure a natural flow in No. 20 Joughin at 3,840 feet and is preparing it for the beam with the expectations of securing a 150-bbl. pumper. No. 29 Joughin was put on a test at 3,750 feet and made 100 bbls. of fluid, 15 per cent water. It will be given a week's trial and if the water content is reduced it will be listed as a finished well.

Long Beach and Huntington

There were no completions recorded at Long Beach during the past seven days and, as a consequence, production continued to drop. There were two wells put on production at Huntington Beach, one of which was a workover job. The Associated, by plugging back No. 42 Miley Keck from 4,318 feet to 3,985 feet, returned it to production, doing 580 bbls., the oil testing 24.3 degrees and showing a cut of 4 per cent. The General Petroleum's No. 3 Dabney, a new well, was good for 290 bbls. of 21.2 gravity oil from 3,267 feet. This new pumper was finished with a 6¼-inch oil string carrying 120 feet of 80-mesh screen landed on bottom. The Standard made a short production test of well No. 8 on Lease E at 2,359 feet and the well looks good for about 40 bbls. a day. A little more work will be done, however before turning it over to the production department.

Miscellaneous Drilling

No. 15 Temple of the Standard, completed early in the week, indicates that the old Montebello Field is still capable of contributing a good well when needed. This new producer, flowing through a ¾-inch bean under a pressure of 280 pounds, came in doing 743 bbls. of 26.8 gravity oil, which cuts 3 per cent. It was drilled to 3,778 feet and finished with a 6¼-inch oil string landed on bottom and 3,656 feet of 2½-inch tubing. No. 62 Baldwin at 4,525 feet, No. 63 on the same lease at 3,881 feet and No. 2 Howard-Smith at 3,928 feet are all in the oil sand and give indications of augmenting the Standard's present production in this district within a short time. The Standard is not experiencing the same degree of success at Rideout Heights, however, and its No. 1 Patton is still dry and extremely doubtful of success at 5,800 feet. At Coyote, the Standard is working on two holes, No. 40 Emery, just getting under way at 457 feet, and No. 100 Murphy, standing cemented at 4,163 feet. Two addtional rigs have been erected on the latter property and, judging by indications, they will be spudded in shortly.

At Whittier, the Standard is drilling ahead in No. 21 Home in a hard sandy shale at 3,520 feet. The Ocean View Oil Co., also operating in this district, has decided to carry No. 2 on down after making two or three unsuccessful production tests at 3,420 feet. The Chicksan has finished rigging up No. 2 Bradford at Richfield and will spud in shortly after Christmas. The Union is cleaning out No. 1 Coyle & Bogue at 4,123 feet, preparatory to deepening this offset to the Chicksan's No. 1 Bradford. The latest entrant into the Richfield district is the Tonner Oil Co., which will start work on No. 1 Swan within a few days.

The South Basin Oil Co. made a preliminary test on No. 2 at 1,165 feet in the Newport area and it looks good for about 60 bbls. of low gravity oil. A rig has been erected for No. 3 and the company has just about finished rigging up. The Interstate got a little production in No. 1 Mesa at 720 feet after plugging back from 3,350 feet. The oil is a little above the average for the immediate area and tests around 13 degrees. This heavy oil being produced at Newport is of no value for refining purposes but is excellent road oil. The Newport Petroleum has a 98-foot tunnel in its petroleum mine but is not yet in a position to determine whether this oil can be satisfactorily mined.

Inglewood Operations

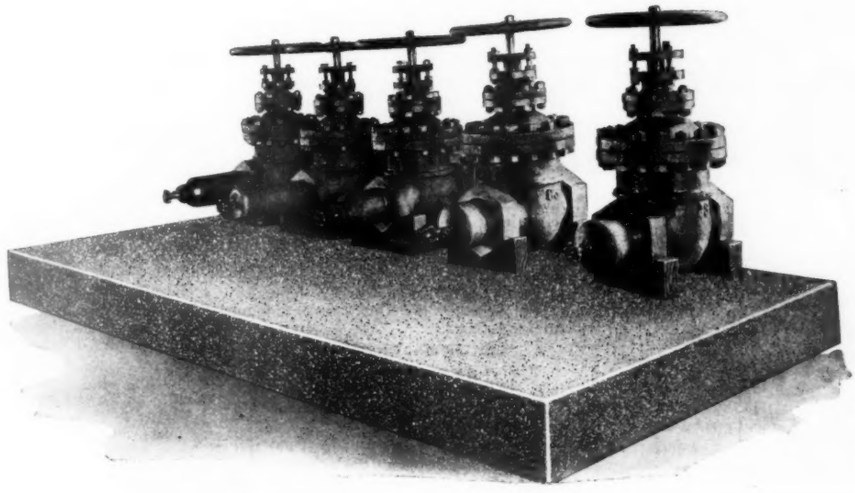
The Mohawk Oil Co. partially finished a small well at Inglewood and this new district should have two producers by the end of the month, this well and the Standard's discovery hole on its Los Angeles Investment Lease No. 1. The Mohawk drilled to 2,344 feet and set a string of 6¼-inch at 2,256 feet. The well made about 100 bbls. during the first three hours before sanding up. This is at the rate of 800 bbls. a day. It is quite doubtful if it will make over 200 bbls. a day on steady production. Considering the shallow depth from which it was brought in, this is a good well. The Standard's operations consist of No. 3 on Los Angeles Investment Lease No. 1 at 1,740 feet, No. 1 Stocker at 3,211 feet and No. 1 Vickers at 1,400 feet. Two other drillers, No. 1 Los Angeles Investment Lease No. 2 at 4,655 feet and No. 1 Potter-Smith at 5,370 feet, are apparently outside the limits of the field and look like dry holes. The Pan American cemented a string of 11-inch in No. 1 Sentous at 1,725 feet a week or so ago but has not yet drilled out.

The Shell is going right ahead with its development work at Seal Beach and, in addition to No. 1 Bixby, a deep test at 5,900 feet, is working on No. 2 Bryant at 4,330 feet and is going ahead in No. 3 Bryant at 800 feet. No. 2 Bryant will undoubtedly be a very interesting well to watch within 30 days. The Wilshire Oil Co. shows 4,560 feet of hole in No. 2 at Bandini but has not yet found any favorable indications in this wildcat. No. 1 Virginia of the Shell at Los Cerritos, northwest of Long Beach, is drilling ahead at 4,005 feet in a sandy shale.

The Manhattan Pacific Oil Co. reports 3,045 feet of hole in its Hermosa wildcat and the formation to be a hard sandy shale. No. 1 Culp of the Standard Oil Co. at Los Nietos is going ahead at 5,700 feet with very little prospect of developing production. There were no favorable indications noted in either the Associated's No. 1 Newhall or the Union's No. 1 Saugus, the former showing 2,450 feet of hole and the latter 1,045 feet. It is reported that the Union has leased approximately 500 acres at Ocean Park Heights and that a test will be put down some time after the first of the year. It might be well for some other companies, in view of the Union's success in opening up new fields, to secure protection acreage, as the company might be successful in adding a new district.

(Continued on Page 76)

"FORE-SIGHT" IS BETTER THAN "HIND-SIGHT"



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AFTER the damage is done it is easy to think of many things that would have prevented it.

Therefore, practice fore-sight and use KEROTEST CAST STEEL Valves and Fittings.

Kerosene tested under high pressure insures absolute tightness, and perfect valves in every respect.

The Electric Ilmenite Steel Castings used throughout and the Wedge Gate Type of Design assure utmost Strength, Continuity of Service and Positive Action.

You should use KEROTEST Cast Steel Valves—they are safer and better.

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Orifice Meter*
Ranges 0 to 20 in., 0 to 60 in., 0 to 100 in. differential
All static ranges from full vacuum to 1,000 lbs. pressure

For casing-head gas, natural gas, still vapors, steam, air, oil and water. Important design advantages include close-up flange connections, all-steel construction of differential gauge and positive-acting, rustless check valves.

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Recording Pressure Gauge*
Ranges from full vacuum to 20,000 lbs. pressure

For steam, gas, air, oil and hydraulic pressures and vacuum. Improved Diaphragm Tube Type Movement for low pressure and vacuum.

FOR TEMPERATURE

Temperature Recorder-Controller
Ranges from —25° to + 1,000° Fht.

For automatic control plus a permanent record of temperature in stills, knock-out boxes, condensers, wax heaters, storage tanks, etc.

Indicating Pressure Gauge
Ranges from full vacuum to 20,000 lbs. pressure

For water, oil, air, gas and steam lines, pumps, etc. Nickel-steel construction and a tube that will not set, assure lasting accuracy.

Recording Thermometer*
Ranges from — 60° to + 1,000° Fht.

For temperature of oil, vapor, superheated steam, condenser water, flue gases, ammonia and brine lines, fuel oil, and for the power plant.

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Liquid Level Recording Gauge*
Ranges from 0 to 250 feet of water

For recording depth or volume of oil in storage tanks, etc. Made in indicating as well as recording type.

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Ranges from — 25° to + 1,000° Fht.

For quick, accurate readings of temperature of oil and water lines and tanks, condensers, feed water heaters, flue gases, etc. Long distance type—dial can be placed where most convenient.

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***These instruments can be furnished with 2, 3, or 4 pens, if desired, to record temperature, pressure or liquid level at different points on the same chart.**

SHIPPING BOARD KEEPING FACTS ON OPERATION

(Continued from Page 66)

section with respect to the rates, fares and charges for the transportation by rails of persons and property transported from, or to be transported to such ports, for such length of time and under such terms and conditions as it may prescribe in such order, or in any order supplemental thereto. Such suspension of operations of the provisions of this section may be terminated by order of the commission whenever the board is of the opinion that adequate shipping facilities by such vessels to such ports are afforded and shall so certify to the commission."

In his memorandum to the Shipping Board opposing application of Section 28, Mr. Dow said a careful survey indicated that total exports of petroleum products moving under export rates to the Gulf ports from inland refineries in 1925 were between 600,000 and 700,000 tons, and that efforts were being made to increase the volume which, based upon a continuation of the applicability of export rates without restriction, would mean substantially larger tonnage to be exported. Comparing export and domestic rail rates from representative refining points to gulf ports, he showed that even under present export rates, the inland refiners must absorb from 1 to 2 cents per gallon transportation costs in their competition with the coast refineries for export sales. If domestic rates should become applicable to export shipments, they would be compelled to absorb from 2 to 3½ cents per gallon, he said. Mr. Dow's memorandum further said:

Mr. Dow's Memorandum

"The situation here presented differs from that of all other American exports. This is clear when the following facts are considered:

(a) The large coast refineries are not dependent upon common carier companies transporting by water but own their own vessels. The inland Mid-Continent refiners do not own their own vessels.

(b) The coast refineries are so located that they can use their own tankers, or they can sell to foreign buyers in foreign tankers without penalty. Section 28 does not affect them, except by eliminating the competition of inland plants. Section 28, therefore, would not compel the coast refineries to use American tankers. It would simply transfer to the present export business of the inland plants for shipment either in an American or foreign tanker.

(c) The coast refineries receive their raw material, crude oil, by pipe line. Speaking generally they do not use the railroads on any part of their export business. The inland refiner frequently receives his crude oil in tank cars and his exports must move by railroad to the coast. Therefore, Section 28, in eliminating export shipments from inland plants, would take away a very substantial traffic from the railroads without giving any assurance of increasing the tonnage which moves in American tankers.

(d) The Shipping Board does not offer any sailings or service from any United States port for petroleum in bulk to any foreign country, nor is such service offered by any common carrier company. The petroleum export situation therefore differs from that of all other classes of traffic. Furthermore, Section 28 does not contemplate that an American exporter shall be compelled to charter an American vessel and go into the transportation business in order to export his products.

Unjust Discrimination

"A large proportion of the petroleum exports from the United States has always been transported into American privately-owned vessels. We had an American tanker marine before the war and neither a Government-owned fleet of tankers nor special legislation of the character of Section 28 was needed to put the American flag on the seas for petroleum service. For that reason, Section 28 would not be needed to encourage the use of American tankers, even if it could have that effect.

"In 1920 when the Shipping Board certified that shipping facilities were inadequate it owned 95 tankers. It now owns 48, the remainder having been sold, and quite properly, to coast refining companies. Even if the Shipping Board were to offer a few of its tankers for charter this would not relieve the situation of the inland refineries for, under Section 28, they would lose all chance of selling to foreign buyers who use their own tankers, a business which the coast refineries would enjoy without penalty.

"The enforcement of Section 28 in so far as it relates to petroleum in bulk would result in an unjust discrimination against the interior refineries to the advantage of the larger companies located at tidewater. It would not necessarily result in the use of a single additional American tanker and therefore as to such vessels it would not contribute to the building up or support of the American Merchant Marine."

DRILLING IN TIOGA AND BRADFORD COUNTIES, PA.

HARRISON, Pa., Dec. 27.—Although several wells have been sunk in Bradford and Tioga Counties in the search for oil and gas, with little return, there still are good possibilities of discovering productive pools in these counties in the opinion of Meredith E. Johnson, an assistant geologist in the State Department of Forests and Waters.

Besides the wells in the Gaines oil pool, Mr. Johnson declares he knows of only one well in that section that is capable of producing in commercial quantities. This is a gas well, now closed in, at Academy Corners, about 1 mile east of Knoxville, Tioga County. Expressing the belief that there are other pools, Mr. Johnson said:

"That belief is based on the fact that the same formation which underlies the surface at moderate depth here contains oil and gas in the counties to the west; and because the rocks have not been folded to a sufficient extent to fracture them and permit and escape of volatile hydrocarbons or other gases which might be contained in them. The rocks seen during a three-day field trip through the region lie nearly horizontal; the highest dip noted was 8½ degrees, and the average was between two and three degrees. Incidentally, most of the wells previously drilled in Bradford and Tioga counties have been poorly located with respect to structure."

In the last two years he said two wells have been drilled, one in Tioga and the other in Bradford County, and at present a third well is being drilled a few miles from the second. The first two did not prove good tests and Mr. Johnson said the one now being drilled is a better location structurally. In the first well, that in Tioga County, "shows" of oil and gas were obtained in a sand at a shallow depth and in the second several barrels of oil were found at a depth of 1,997. Mr. Johnson expressed the belief that the well now under way should encounter the sands at much shallower depths.

EUROPE BUYING MORE CARS

Improvement in economic conditions in Germany and France has resulted in an increase in the sales of high-priced American automobiles in those countries, according to a statement issued by the Packard Motor Car Co. In Germany 58 cars of the straight eight models have been sold in the last few months. Last year no Packards were sold in Germany. Twenty-five Packards, chiefly of the straight eight model, have been sold in France in recent months, while only one car was sold in the same period last year.

The company says that its foreign business shows a marked increase generally due to better conditions abroad. Sales for the first eight months of the current year showed an increase of 44.8 per cent over the same period last year.

SPANG

Weldless Drilling Jars Dropped!

—2900 Feet In a 10″ Open Hole

—and when recovered they were found in excellent condition, while the stem was badly bent and the pin broken off the bit.

This unfortunate mishap occurred to a Spang Weldless Jar user in Texas. Should these jars have broken—as undoubtedly would have happened had they been using ordinary welded jars—and should the fragments have lodged along side of the stem and bit in the hard lime, a "plugged" hole would have been the inevitable result.

Tough alloy steel carefully made into jars without welds, proper heat treatment means service with safety.

Your dealer has Spang Weldless Jars in stock. Order from him today.

Spang Jars

- Excellent Joints.
- Greatly increased footage drilled.
- Elimination of Jar fishing jobs.
- Reduction of drilling risk.
- Three to five times as much service as other jars.
- Increased profits.

Spang Thread Protectors

Protect your Tool Joints with Spang Thread Protectors. Like all Spang products they guarantee satisfaction and long, durable wear.

Spang and Company

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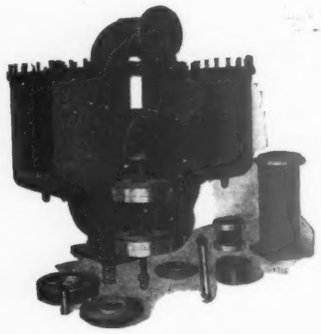
Sold at all leading Supply Houses everywhere

Chester Type Transit Pumps



Chester Type Fluid End Disassembled

Will handle any crude; differing from other pumps in their ability to handle the heaviest crudes efficiently. See Item 2.

1. ***See how simple and sturdy it is made.***

   Consider the small list of "spares" necessary.

2. ***See the large valves and fluid passages.***

   Percentage of Valve Area very high. The fluid end illustrated has 130 per cent of the piston area.

3. ***See the accessibility of all parts.***

   Removing the bottom cap nut will permit each valve stem with its suction and discharge valve to be easily removed through the top for inspection or repair.

Engineers Interested are Invited to Communicate With Us.....

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OIL CITY, PA.

District Offices: New York Philadelphia Pittsburgh Cleveland Tulsa Houston Denver

CALIFORNIA FIELDS

(Continued from Page 72)

H. A. Bardeen abandoned his No. 2 in the San Jose Hills after drilling to 1,450 feet. There is a little low gravity oil present at this depth but no one has yet been able to cement off the water and pump it. J. M. Danziger has relinquished his 450-acre lease on the Didier Ranch in this immediate neighborhood and turned it back to the original owners.

Wildcats

The Standard is going ahead in both its San Emidio wildcats, the test on Section 28-11-22 showing 2,390 feet of hole and that on Section 5-10-22, a little more than 1,100 feet. The General Petroleum reports 3,355 feet of hole at Comanche Point on Section 31-12-18 and the formation a hard sand. The Standard is getting quite deep at Lost Hills and No. 1 Cruse on Section 5-27-20 is drilling ahead in a sandy shale at 4,207 feet. The Union's Rio Bravo wildcat, Section 4-29-25, is still in a blue shale at 5,200 feet but, because of the depth, the outlook for production is not any too encouraging. The Marland is putting the finishing touches on No. 2 Cauley, on the Kern River front, Section 36-28-28, and will complete preparations to put it on the beam at 2,474 feet within a week. About a 100-bbl. pumper is expected.

There was very little change in any of the holes on the Kern River Bluffs, south of Bakersfield. The Pan American has carried No. 1 Parkford, Section 13-29-29, to over 4,200 feet and, while there have been one or two small showings, they were not of sufficient importance to warrant a test. The St. Helens on Section 14-29-28 is just drilling out the cement following the landing of a string of 10-inch at 3,000 feet. The Central recemented the 6¼-inch at 1,900 feet in its test on Section 36-28-28. The bottom of this hole is 2,487 feet, at which depth a minor showing was found.

R. W. Edens, the Kendon Petroleum and the Wesco Petroleum, operating in the Temblor region, are all held up because of caving holes. These operators anticipated shallow production and expected to be able to thoroughly test their property with portable drilling outfits. It appears, however, that heavier rotary equipment will be required if the present holes are to be deepened. The trouble in each case originated between 150 feet and 300 feet. A. J. Bomke has staked location for his first test to be drilled on Section 12-29-30. The Shell is finishing rigging up No. 1 Jones in the Weed Patch area on Section 29-30-29, but no specific date has been set for the spudding in so far as can be learned.

The Main Oil Co. is pulling the 4¼-inch from its Wasco wildcat on Section 28-27-24 and will deepen the present hole, now at 3,979 feet with rotary equipment. E. J. Miley is going ahead in a tough shale at 5,186 feet in his No. 1 Kreyenhagen on Jacalitos Dome near Coalinga but so far has not found anything except a few small gas showings. The Snowolene's test on Section 22-21-15 is standing cemented at 3,811 feet, a string of 8¼-inch being landed at this depth. It is reported the Marland Oil Co. has ordered materials for No. 2 Azores, to be located on Section 26-21-15.

The General Petroleum's Kettleman Hills wildcat on Section 28-22-18 is beginning to look quite doubtful, although the company is now figuring on production around 6,000 feet. The bit at present is going ahead in a hard brown shale at 5,755 feet. The McPhail well, Section 13-24-18, shows approximately 1,500 feet of hole. The Marland's test on Section 12-22-17 is standing cemented at 3,514 feet, a string of 11-inch being landed at this depth. The bottom of the hole is 6 feet deeper. Neither the Associated on Section 12-23-18, nor the Bolsa Chica on Section 30-23-19 has shown any indications of resuming work following a technical spud made several months ago.

Ventura County

The Oakridge Oil Co. lost several stands of dril pipe in No. 1 McFarland, in Ventura County, and as a result, no additional footage was made during the week. E. J. Miley is building a road to the site of his first test to be located on Red Mountain and, although a little material has been hauled in, actual work on the derrick construction has not yet been started. The Union has erected a rig for No. 15 Escolle at Casmalia and will probably finish rigging up within a week or 10 days.

Very little exploration work has been done in Santa Barbara County during the past few years and it is quite possible that after the present flush production has settled, the major companies will do some drilling in this area. The Shell, General Petroleum, Union and Standard all have considerable acreage tied up and it would not be surprising if several wildcats were started early next year. The Union, by starting work on No. 15 Escolle, is leading the way but will undoubtedly be followed into the area by the other companies mentioned.

The Gilmore Oil Co. has started a new hole at Santa Maria and will finish the rig for No. 4 on Section 30-9-32 within a few weeks. E. J. Miley is reaming his San Luis Obispo County wildcat on Section 22-31-21 at 1,250 feet. The Oakridge's No. 1 Mahoney, Section 4-25-12, also in San Luis Obispo County, is drilling ahead in a blue shale at 3,100 feet. The Prize Oil & Gas Co. has cemented a string of 10-inch in its hole on Section 17-4-1 in Colusa County at 410 feet. No report is available on the Consolidate Royalties' test on Section 31-18-4, but at last reports they were drilling in a sandy shale around 1,700 feet. There is only one string of tools in operation in Monterey County. Harriman & Jones, who are going ahead at 2,690 feet on Section 20-19-6, are the only operators working. John C. Currier, Section 3-20-7, and the Monterey Peninsular, Section 32-15-2, have suspended operations.

In San Mateo County, the La Honda Oilfields has suspended work on No. 2 at 1,150 feet, while the Paraffin Oil Co. has followed a similar policy on Section 10-7-5. The San Mateo Petroleum is going ahead slowly with its first test on Section 15-7-5 at 610 feet. In Santa Clara County, the Santa Clara Oil Co. reports 3,400 feet of hole on Section 1-12-3. The Associated Development Co. in Sacramento County has suspended operations at 2,960 feet, while the Affiliated Oil Co. in San Joaquin County has cemented a surface string at 950 feet.

TO START CRUDE OIL MOTORS

A new method of starting crude oil motors has been patented and applied in practice in a tugboat at Lysekil, Sweden. The invention makes it possible to start the motor in a few seconds without heating the cylinder by means of a blow lamp. The invention has now been designed for about 2,000 Bolinder motors, and was recently demonstrated in Gothenburg. The inventor is C. A. Rudkvist. Ignition is made by means of an insulated spiral, screwed in the wall of the gear box and heated to a glow by current from an accumulator battery. The new method will be of great use on already existing crude oil motors, which can now be started by a turn of the hand.

EXPECT FEDERAL AWARD

AUSTIN, Tex., Dec. 27.—J. T. Robison, Texas Land Commissioner, Assistant Attorney General W. W. Caves, and Sam Sparks, principal claimant of rights to oil produced under Federal receivership of the Red River boundary case, in wells in the strip between the middle of the south bank of the river, on leases given them by the State of Texas before the Supreme Court took that strip away from the State and awarded it to the Federal Government, have returned from Washington, where claims of the Texas patentees for priority in permits to be issued by the Department of the Interior were presented. Mr. Sparks is confident that the possession in good faith under Texas permits awarded in good faith, will result in awards giving to him and the other claimants the proceeds from oil produced and the property in the strip of non-State river bed.

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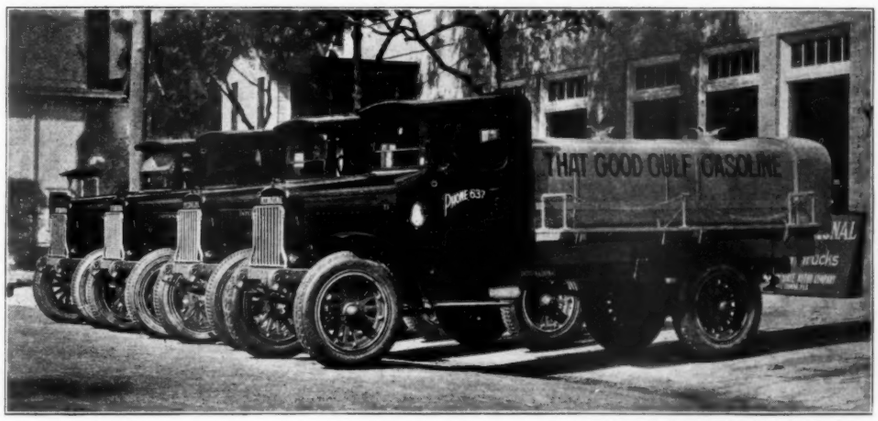

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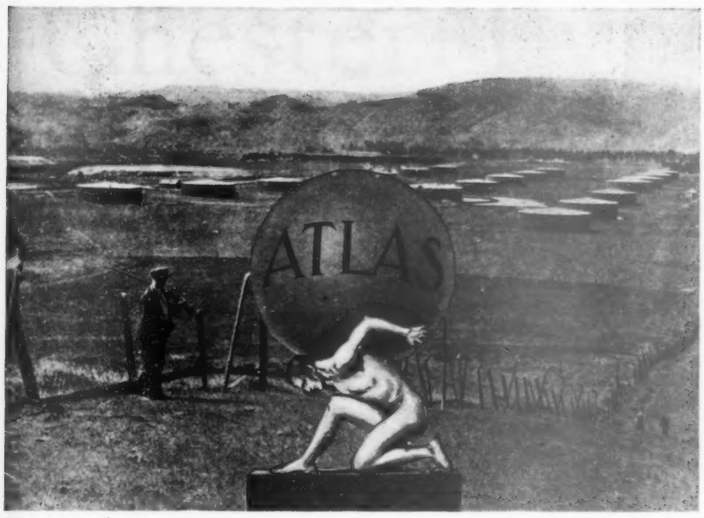

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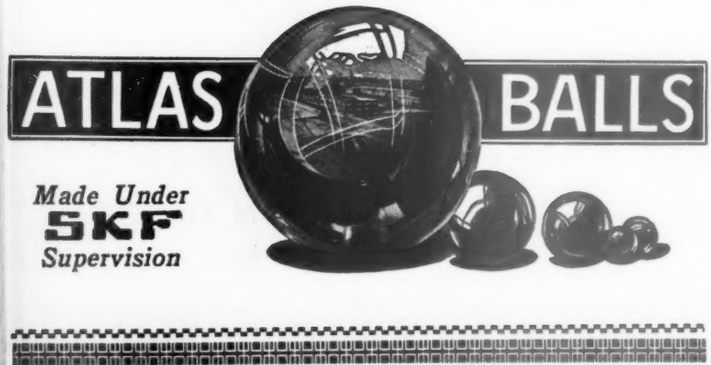

KENTUCKY-TENNESSEE

(Continued from Page 58)

feet. The sand was had at 7 feet below the bottom of the shale which showed a thickness of 7 feet.

In the Bays Fork district, Dixon and others' No. 4 Peerson showed for a 5-bbl. pumper after the sands found at 16 and 21 feet below the shale were shot with 15 quarts each. The shale was from 402 to 453 feet and the hole was drilled to a total depth of 514 feet.

Other Completions

In the Owensboro district, I. N. Harkless' No. 2 Dick Spurrier, in the Hurricane district, one location west of No. 4 Casey, made 12 bbls. from the shallow Jett sand at approximately 460 feet.

In the Pellville Pool, the Pellville Oil Co.'s No. 4 Brown was plugged and abandoned in the Barlow sand.

C. A. Leeper's No. 1 R. M. Miller in the Hurricane area, was reported at 4 bbls. from the Barlow sand at 740 feet.

Reports from Cumberland County state that West & Co.'s No. 1 Love Coe at Kettle Creek is dry at 789 feet, 284 feet below the Pencil Cave. A. S. McClintock's No. 1 Millard Kerr, discovery well of Kettle Creek district, is pumping 7 bbls. daily from a total depth of 787 feet. Pencil Cave was from 452 to 455 feet. No. 8 Kerr is spudding.

W. S. Raydure's No. 1 M. E. Coop, deepened to 317 feet below the Pencil Cave, is producing 100 bbls. daily. This lease is at the head of Sulphur Creek in the northern extension of the Sulphur Creek district. No. 3 on this same property is drilling at 265 feet below the cave. It was producing 5 bbls. per hour at 240 feet below. It is reported it will be drilled to at least 325 feet below the Pencil Cave before the rig is skidded to another location.

Hook & Wise's No. 1 None at Potters Creek was down 450 feet and drilling.

In the Bear Creek area, Baldensperger and Thrasher's No. 1 J. C. Hood is drilling at 85 feet.

CENTRAL WEST

(Continued from Page 60)

tion for a test on the Frank Crippen 170 acres, Section 3.

In Strongville Township, Cuyahoga County, the East Ohio Gas Co. located No. 2 on the G. Stetler 73 acres, Los 98.

Offside Operations

In Jackson Township, Knox County, in the Central Ohio area, Cline Brothers' No. 3 on the Fred Veitch 154 acres, Section 1, is reported to have produced 30 bbls. the first 24 hours. The well is 990 feet from the south line and 1,050 from the east line of the lease. The Ohio Fuel Supply Co. is drilling No. 1 on the northeast corner of the E. and M. Allen 41 acres, same section.

In Jefferson Township, Knox County, the Upham Gas Co. is drilling a test on the J. F. Blubaugh 80 acres, Section 12, and J. B. Reed and others are due in with No. 1 on the southwest corner of the Blanche Reed 20 acres, Section 14.

The Pure Oil Co. is drilling a test in the southwest corner of the M. C. Julian 29 acres, Section 8, Barlow Township, Washington County. In Fairfield Township, same county, Bachelor Brothers struck a flow of 37,000 feet of gas in the Maxon sand at 1,171 feet in a test on the Winfield Croy farm, fractional Section 679, but concluded to give the well a deeper test.

EASTERN FIELDS

(Continued from Page 56)

the Ananias Davis farm. The same parties have made a location on the J. F. Douglas farm. In New Milton district, D. W. Gribble has moved in tools to a location on the J. B. Burbridge farm.

In Clay district, Monongalia County, the Hope Construction & Refining Co. has started to drill on the Louis Tennant farm. In Batelle district, the Manufacturers Light & Heat Co. has a rig up on the Hannah Price farm. In Clay district, the Clay District Oil & Gas Co. is drilling on the Letham Tennant farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. is drilling in the Big Injun sand on the Ernest Wendt farm. The same company has started to drill on the J. F. Reid farm and rigging up on the W. B. and Emma Calvert farm. In Union district, the U. S. Stamping Co. has made a location on the J. V. Markey farm. In Liberty district, the Hope Natural Gas Co. is rigging up on the J. H. Yoho farm. In Center district, Wetzel County, the same company is due in the Big Injun sand on the J. W. Allen and Jefferson Miller farms. In Proctor district, the same company is drilling on the Hiram Lemasters farm. The Myers Gas Co. has started to drill on the Joseph Allen farm. In Clay district, the Wetzel Gas Co. has drilled to a depth of 800 feet on the S. E. Longstreth farm and shut down.

Southwest Pennsylvania

In the southwest Pennsylvania fields there were very few completions. Aside from the completion of a 7,000,000-foot gasser in the Big Injun sand on the Smith-Fuller farm in Whitely Township, Greene County, developments were of little importance. In Wayne Township, the Wayne Oil & Gas Co. got a fair gasser in the fifth and Bayard sands at a test on the J. H. Cole farm.

The greatest disappointment of the week was the drilling deeper of the Peoples Natural Gas Co.'s second deep test on the Booth Flinn property on Chestnut Ridge, Westmoreland County. It will be recalled that this well more than two weeks ago, while drilling at a total depth of 7,428 feet, struck a flow of gas and the tools were stuck in the hole. A fishing job of short duration ensued and the tools recovered. It was confidentially expected when the tools were removed from the hole the well would drill itself in. This it failed to do and did not increase its flow of gas when drilled 3 feet deeper. They will drill it still deeper but the prospects for an increase are not encouraging. It is probable that all the distinction that can be claimed for the well is it is the deepest gas well in the world, even though it was not found in commercial quantities.

PIPE LINE FROM GROZNY TO BLACK SEA PORT

The Economic Life of Moscow says: "A conference concerning the construction of an oil pipe line between Grozny and one of the three ports on the Black Sea (Novorossisk, Poti, or Tuapse) took place on October 3 in the Central Administration of Marine Transport. It was considered desirable to construct the line between Grozny and Tuapse, which route, being 100 miles shorter than that to Novorossisk, will be much less expensive and will offer a separate port for Grozny oil. It is also said to afford greater security against the dangers of fire. The total cost of the Grozny-Tuapse line is estimated at 21,000,000 chervonets-rubles (approximately $10,500,000) exclusive of work in Tuapse harbor estimated at 2,000,000 to 2,500,000 rubles ($1,000,000 to $1,250,000.) It is estimated that the work of constructing the line will last two and one-half years, in case the necessary financial means are forthcoming. According to a recent decision of the Federal Soviet of Labor and Defense, the Grozny Naphtha Administration must immediately place advance orders for piping and other equipment."

BELGIUM SEEKS MEXICO OIL

The Government of Belgium is reported to be conducting an exhaustive investigation of the Huasteca petroleum fields of Mexico with a view to acquiring a source of crude oil supply for that country. Dr. Conrad Schmit of Antwerp, a geologist and director of the Petroleum Society of Belgium, has been in Tampico directing the investigations for his government. Surveys have been made of the Huasteca fields extending as far south as Zacamixtle in the State of Vera Cruz and the mission will continue its observations in the newer developments north and west of Tampico in the State of Tamaulipas.

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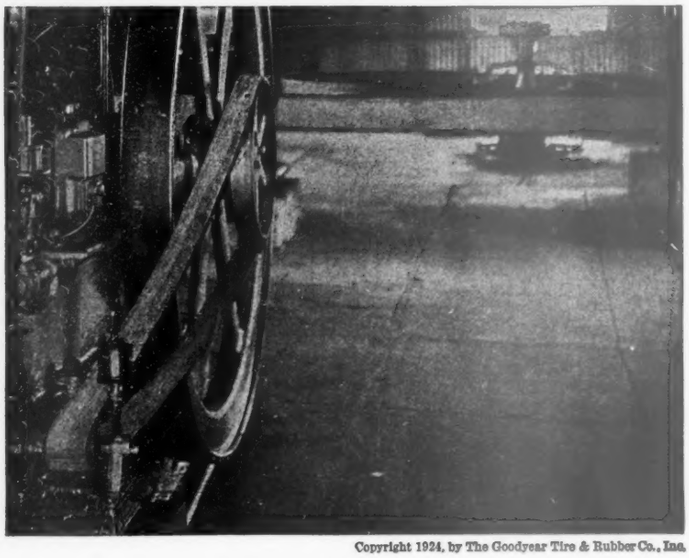

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COMBINATION TO RESTRAIN WASTE NEEDED, SAYS GEORGE OTIS SMITH

By Dr. George Otis Smith
Director United States Geological Survey

Speaking informally at Tulsa in October at a smoker attended by petroleum geologists and engineers, I took three obvious facts as my text. The first of these axiomatic truths—that geologists are the salt of the earth—had local application and need not be discussed here. The second was the reported discovery by a practical economist that competition is the death of trade, another truth of which the oil industry needs no exposition. The consumer, however, may well ponder over what is going on before his eyes. Take as a single instance of overdevelopment the glaring illustration—glaring in red, yellow, blue, or green paint—seen in our filling stations. On a recent drive from the woods of Maine to this Capital City, I discovered that a quart gasoline tank would have been sufficient equipment for my small car, so closely spaced were the filling stations, and even then I need not have patronized all the service stations I passed. This multiplicity of retailers increases the sales of gasoline by not a single gallon, yet all this excess standby equipment involves an increase in operating cost for which someone must pay.

The third obvious fact that formed part of my text perhaps has more value in the present consideration of conservation, which I understand is the practical problem I am asked to discuss. This axiomatic truth which I think sums up the present day trouble and offers the means of relief, is that what we need in our production of petroleum is combination in restraint of waste. The known facts of geology and the simple rules of economics force me to conclude that no other method is available to stop certain leaks in the oil business that are enough to cause more than local or trade concern. That we are winning to the use of man far less than a quarter of the oil in the ground is something far more worthy of general notice than today's price of "gas." Indeed, the fact that the price of gasoline in 1924 has been only 25 per cent above the price in 1914 puts gasoline far in the rear of other necessities of life in the upward trend of prices.

Some years ago, in speaking at Dallas to the American Association of Petroleum Geologists, I stated this plank in my economic platform in the phrase, "competition is the death of conservation" and I developed the thought along this line:

Need for Conservation

"Lawmakers have wandered far astray in trying to secure to the people their share of the profits incident to the utilization of national resources, but you geologists who have been in touch with the industries founded upon our mineral wealth have observed too often that division into small fractions is not a good preliminary to economic use, and that haste makes waste. The stampede to a new mining camp and the boom in a new oil field belong to the pioneer days of individual grabbing rather than to the period of utilization for the benefit of the many. And no resource is more easily wasted than oil if individual desire for gain is given full sway and the larger rights of the people are lost sight of; nor on the other hand does any resouree better lend itself to exploitation with a minimum of waste either of itself or of human effort. Petroleum stands out unique as the conserver of man power in its production, its transportation, and its consumption. Yet this fluidity which makes possible this saving in man power is a virtue that easily leads to loss; the program of waste begins in the oil sands and continues above ground with leakage and evaporation and the spectacular finale is often the tank fire. The oil geologist best understands conditions beneath the surface, and his peculiar responsibility therefore lies in protecting the oil sands from the effect of improper drilling and operation and in keeping the drilling program within economic limits. To secure the least expensive and most effective recovery of the oil in any pool, a forest of derricks is not necessary, however attractive it may appear in the oil company literature. How many wells are needed is a geological question, pure, although not simple.

"The geologic problem of spacing wells in the interest of true economy has been largely hidden from view by several layers of legal complications. The fugitive nature of water and oil and gas is expressed in the judicial opinions by likening them to wild animals and classifying them as minerals ferae naturae. On this theory, possession of the oil along with the land is at best only temporary, and to put aside the legal terms for a moment, the rule of action adopted is "get while the getting is good." Further incentive to overdevelopment is found in the legal doctrines that follow from the general practice of oil operations on leaseholds. In its efforts to protect the lessor of oil land the law has put so much emphasis upon drilling to prevent draining away from the leased land that it really somewhat obscures the rights of adjoining owners to their share of the oil. It seems to a layman that the law tries to construct a gate that swings only one way, and oil operators have been so human as to need little help from the law in this respect.

"Now to the oil geologist, the application of this phase of the subject appears plain enough. The planning of an economical drilling program is an engineering task to which the geologist can apply his best energies with credit to himself and profit to his employer, and the saving thus affected is conservation of the best type. Some years ago I set up as the ideal for an oil law, 'the highest percentage of extraction at the lowest cost to the consumer,' and on private as well as public lands that is the practical end to be sought."

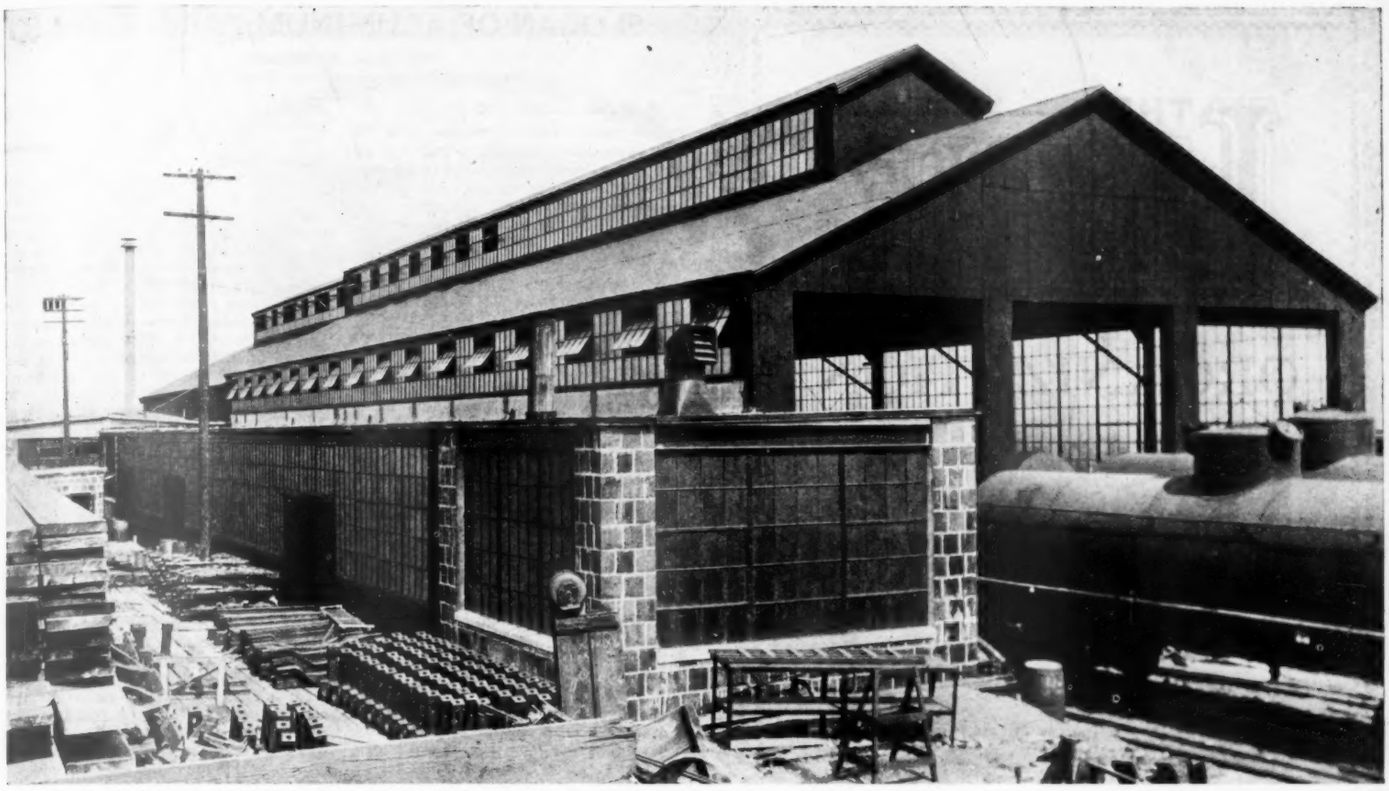
Supply More Than Price

The petroleum industry and the American public need to understand each other better and to help each other. We need first of all to realize that all too soon the time may come when the critical issue will not be so much the price of petroleum as the supply available. Therefore, the conservation needed is more a matter of saving oil than of saving money. This is the practical not the political issue.

To conserve the oil in the ground there we need devise some system of public regulation that will slow down the present frenzied rush to drill and drain—some radical change in the rules of the game that will better preserve the true equities of the individual and at the same time serve the larger public interest. It is certain enough that as long as the present grab-game continues, America's priceless heritage of lubricants, fuel oil, gasoline, and a score or more of other petroleum products is being squandered. The present pace is one that kills. Again I would quote the California court, which, apparently taking cognizance of the immoral and uneconomical aspects of the present practice, hinted that some time there might be applied "a rule better calculated to protect oil not actually developed." Sould not the oil industry itself actively advocate such a reform?

GULF COAST CRUDE STOCKS

HOUSTON, Tex., Dec. 27.—Stocks of Gulf Coast crude December 1 total 13,681,368 bbls., a decline of 1,327,262 bbls. from November 1 figures. Crude stored in steel tanks aggregated 5,730,668 bbls. and in earthen reservoirs 7,950,700 bbls. The Humble Oil & Refining Co. is drawing on its surplus in the West Columbia and Hull Pools. Stocks of Luling crude total 1,708,540 bbls., a decrease of 20,080 bbls. from November 1. Stocks of light gravity crudes held in Gulf Coast territory total 6,718,880 bbls., an increase of 537,420 bbls. from the November 1 figures.



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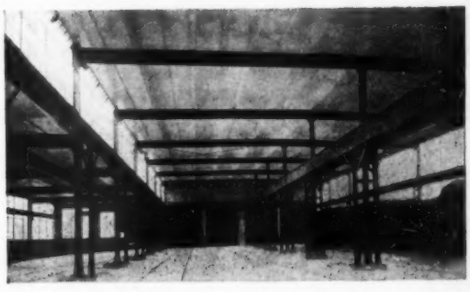

Interior view of locomotive tank repair shop. Built by Austin. This building is of Austin Modified Standard Design. Exterior view of same building below.

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"SAVE THE SURFACE AND SAVE OIL" SLOGAN OF ALUMINUM PAINT EXPERT

By Junius D. Edwards
Assistant Director Research Aluminum Company of America

"Save the surface and you save oil" paraphrases a popular slogan. For oil storage tanks, aluminum paint will do both. The importance of protecting iron and steel from corrosion by painting has long been realized, but it is only of recent years that the problem of preventing evaporation losses from oil storage tanks has been extensively considered.

Not everyone appreciates the tremendous amount of heat energy in the sunshine falling on an oil tank in the course of a day. To take a specific example, an oil storage tank having a projected area normal to the sun's rays of 1,000 square feet might be receiving heat at the rate of about 4,500 b.t.u. per minute on a bright sunny day in any one of the southern oil fields. This amount of heat is sufficient, if completely absorbed by the oil, to raise the temperature of 1,200 gallons of oil about 1 degree F. per minute. Of course, nothing like this happens because the surface of the tank reflects more or less of the sun's rays and air currents passing over the tank dissipate a very large portion of the heat absorbed. Also a small portion is lost by radiation from the walls of the tank. It is obvious, however, that it is highly desirable to reflect as much as possible of the radiant heat falling on the tank in order to maintain the oil at as low a temperature as possible.

Aluminum paint has proven eminently successful in this capacity. It has a high reflectivity which permits it to reflect from 60 to 70 per cent of the sun's energy falling on it.

The Bureau of Mines estimates that in the Mid-Continent Field, for example, about 6.5 per cent of the oil produced is lost by evaporation. Of this amount 8.5 per cent approximately is lost on the lease and 3 per cent during transportation. A very substantial part of this evaporation loss can be saved by the use of gas tight tanks and other mechanical arrangements, However, there is a residual evaporation loss even with the best mechanical equipment which can only be reduced by maintaining the oil at as low and uniform a temperature as possible.

The Bureau of Mines' tests indicate that a highly reflecting painted surface is substantially as efficient as a much more elaborate system of thermal insulation; efficient painting is more practical, however, as insulation is unduly expensive. Other tests indicate that oil storage tanks painted with aluminum paint, on sunny days, will keep the temperature of the contained oil as much as 10 degrees F. or more lower than that of oil in tanks painted black or other dark colors. Such a temperature difference might make a difference of about 20 per cent in the vapor pressure of the oil and would effect a substantial saving in the more volatile and valuable constituents of the oil.

In addition to saving oil by reducing evaporation losses, aluminum paints is a highly efficient structural paint for tanks in general if only considered from the standpoint of protecting iron and steel from corrosion. The flake-like particles of metallic aluminum which form the pigment in aluminum paint are both highly reflecting and opaque to light, hence they completely exclude light from the vehicle underlying the pigment particles in the paint film. This gives durability and long life to the paint. The aluminum paint film also showes high resistance to penetration by moisture.

Another interesting property of aluminum paint of particular importance in connection with its use on oil storage tanks is the fact that sulphur and sulphur-containing compounds do not darken aluminum paint. In most fields, light-colored lead paints are entirely unsatisfactory for use on oil storage tanks because of the darkening effect of sulphur. For this reason also the vehicle used with aluminum bronze powder in making an aluminum paint for oil storage tanks should be free from lead drier. Such vehicles are readily obtainable.

Because of the opacity of aluminum bronze powder, aluminum paints have exceptionally high hiding power. This property is very useful in applying aluminum paint over dark-colored ground coats as it permits a bright surface of high reflectivity to be obtained with one coat. Of course, for a durable protective covering, two coats will be desirable.

Aluminum paint can be made by stirring aluminum bronze powder into the appropriate vehicle. The powder is not ground in oil as with other pigments, and it is usually easier to mix aluminum paint from the ingredients than it is to stir up the more or less stiff cake of pigment in a can or barel of ready-mixed paint. There is a wide variety of vehicles available for use in making aluminum paint, such as heavy bodied linseed oil, spar varnish, and a variety of compounded vehicles made especially for aluminum paint by paint and varnish manufacturers. Aluminum bronze powder is usually incorporated with these in the proportion of about two pounds of powder per gallon of vehicle.

The highest reflectivity and best hiding powder in one-coat work is secured with what is known as polished powder. A special finishing process gives to this grade a particularly high luster and also permits it to leaf in the vehicle. The leafing process is a surface tension effect which permits the aluminum particles to form a very smooth surface film of high reflectivity.

In addition to its use on oil storage tanks, oil tank cars, tanks in general and other types of structural steel work, aluminum paint is particularly adapted for interior work where a bright clean surface of high light distributing efficiency is desired. The Aluminum Co. of America has published a little brochure on aluminum paint which tells in detail of its preparation, properties and many useful applications.

EASTERN PIPE LINE REPORT

Receipts of crude petroleum from the wells by the pipe lines of the eastern division during the month of November amounted to 1,688,450 bbls., which is a daily average of 56,282 bbls. This is a decrease of 325,809 bbls. in the total when compared with the previous month and a loss of 8,694 bbls. in the daily average. The daily average is 14,480 bbls. less than the daily average receipts for the month of November, 1923.

The deliveries of crude petroleum during the month of November by the pipe lines of the eastern division aggregated 4,272,010 bbls., which represents a daily average of 142,400 bbls. This is an increase of 453,746 bbls. in the total and 19,230 bbls. in the daily average when compared with the figures for the previous month. The daily average shipments were 7,026 bbls. smaller than for November, 1923.

During November the runs of oil from the Illinois Field by the Tide Water Pipe Co. and the Illinois Pipe Line Co. amounted to 650,148 bbls., the daily average being 21,671 bbls. This is a decrease of 91,619 bbls. in the total and 2,257 bbls. in the daily average. Deliveries of oil during November by these two lines totaled 521,459 bbls., a decrease of 22,405 bbls. The daily average was 17,382 bbls., which is a decrease of 162 bbls.

During the month of November there was a decrease of 395,531 bbls. in the amount of crude oil held in storage by the eastern pipe lines. This brought the total to 12,268,530 bbls. at the close of the month. The amount of Pennsylvania oil in storage decreased 23,878 bbls. during the month. There was an increase of 3,489 bbls. in the amount of Lima oil in storage, an increase of 87,445 bbls. in Kentucky crude, a decrease of 419,303 bbls. for Mid-Continent oil and a decrease of 13,285 bbls. for Illinois oil.

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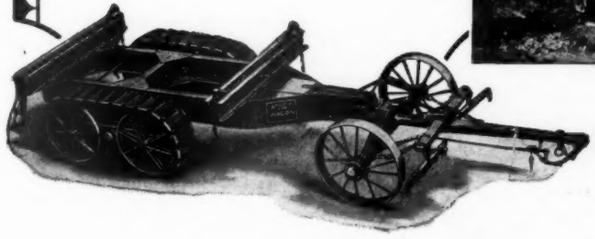

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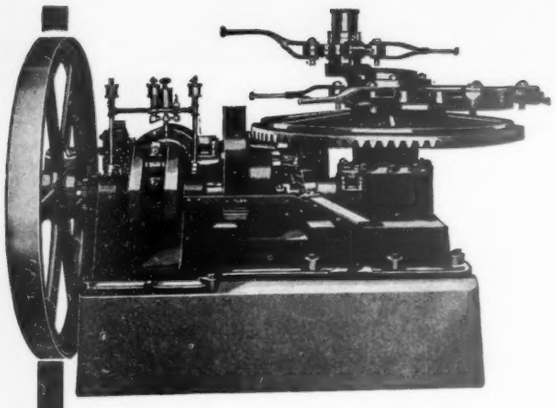

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PATTIN POWER

OIL COMPANIES SPENDING MILLIONS TO INCREASE THEIR TANKER TONNAGE

By N. O. Fanning

NEW YORK, Dec. 27.—Believing that the world faces an era of comparative peace and prosperity in which the consumption of petroleum products will break all records, oil companies operating abroad either in the production or marketing end of the business are laying plans to increase their facilities for handling the anticipated demand. So firm is their belief in the future that they are now spending millions of dollars for marketing equipment and transportation facilities.

Tanker tonnage is an all-important factor in supplying the demand for petroleum products in Europe, which is second in importance to the United States as a consumer of oil. Europe is expected to be the center of foreign activity in the oil business. But practically all of the oil consumed there must come from the United States, Mexico, South America, Persia or the Dutch East Indies, all of which sources of supply are thousands of miles away. Without tankers Europe could not buy oil at a figure reasonable enough to justify its use.

In short American tanker tonnage is believed sufficient by leading marketing companies to take care of a much bigger business than it is now handling, and therefore a great increase in construction in American yards will probably not take place. Especially is this so inasmuch as American vessels are handicapped in the export trade for the reason already outlined.

Foreign Tonnage in Demand

Most of the American oil companies operate abroad through foreign subsidiaries, and the new tankers are being built for these subsidiaries and will be owned by them. They will be under registry of the countries in which they operate.

Although figures for tankers alone are not available, it can be said that most of the new construction will take place in German yards. Three times as many vessels of all classes are being built in Germany than in any other country at the present time. This applies to tankers as well as other types of ships.

Orders placed abroad for tankers during 1924 include the following:

Company—	No. of Vessels	Deadweight Tonnage	Total Deadweight	Where Building
Shell Transport & Trading	8	10,000	80,000	Holland
American Petroleum Co. of Holland	2	12,000	24,000	Germany
American Petroleum Co. of Belgium	1	12,000	12,000	Germany
Imperial Oil, Ltd.	2	12,000	24,000	Germany
Deutsch-Amerikansche Petrol. Gesellschaft	4	12,000	48,000	Germany
Deutsch-Amerikansche Petrol. Gesellschaft	*1	13,370	13,370	Germany
Deutsch-Amerikansche Petrol. Gesellschaft	*1	13,260	13,260	Germany
Deutsch-Amerikansche Petrol. Gesellschaft	2	15,600	31,200	Germany
Bedford Petroleum Co.	†1	6,450	6,450	Germany
British Tanker Co.	‡2		.....	England
Total	24		252,280	

*Delivered. †Lubricating oil tanker. ‡Delivered, one of 6,950 gross tons, one of 6,060 gross tons.

Building More Tankers

In order to be prepared for the demand for oil products in Europe anticipated in 1925, leading marketers have placed orders for new tankers aggregating a quarter of a million tons. Most of these will be motorships, equipped with Diesel engines, and will be under foreign registry. The reason for this is that in many instances oil imported into European countries in American vessels must pay higher duties than that imported in vessels of the countries concerned.

Orders placed by the Standard Oil Co. of New Jersey and Royal Dutch-Shell combine for new tankers aggregate approximately 230,000 deadweight tons and involve the expenditure of approximately $15,000,000.

It is understood that other American and foreign oil companies have placed orders or contemplate doing so for additional foreign tonnage to be built in foreign yards, where construction costs are much cheaper than in American yards.

Significance of Construction

Placing of all these orders for tanker tonnage signifies a new era of tanker construction, which differs from the last in many particulars. In 1919, 1920, 1921 and 1922 a remarkable increase in tanker construction took place, a large part of which was in American yards. The Standard Oil Co. of New Jersey, Atlantic Gulf & West Indies, Gulf Refining, The Texas Co. and other companies built a large number of American vessels, but these were for the purpose of transporting crude oil in anticipation of a shortage of oil in the United States and the necessity of importing a large amount of crude.

These vessels were at first largely employed in transporting crude from Mexico to the United States. The decline in production of the Mexican fields threw the larger part of them into other channels. Many were engaged during the latter part of 1922 and all of 1923, and in 1924 to date, in carrying oil from California to the Gulf and Atlantic Coasts of the United States. Although the California movement is decreasing, possibly most of the tankers under American registry will continue in action carrying oil in the intercoastal trade, which is prohibited to tankers of foreign registry.

The eight vessels first noted are for the Dutch-Shell combine. The two last noted are for the Anglo-Persian Oil Co. All others are for subsidiaries of the Standard Oil Co. of New Jersey.

Without exception the order for tankers of interests associated with the Standard Oil Co. of New Jersey is the largest ever placed for motorships at one time, all of the 14 vessels being on the ways or just delivered. These motorships are or will be among the largest afloat.

Foreign Tanker Fleets

The Anglo-Persian Oil Co. has the largest fleet of tank steamers under foreign registry at present, with the Dutch-Shell combine second. The principal tanker fleets under foreign registry are as follows:

	No. Ships	Approx. Gross Tonnage
Dutch-Shell Combine:		
Anglo-Saxon Pet.	14	78,686
Asiatic Petroleum	2	11,134
Eagle Oil Transport	34	293,823
Total	50	382,643
Anglo-Persian Oil:		
British Tanker Co.	63	369,799
Burmah Oil Co.	2	13,204
Total	65	383,003
Standard Oil Co. of N. J.:		
D. A. P. G.	8	38,500
Imperial Oil, Ltd.	10	61,913
International Pet., Ltd.	2	17,040
Societa "La Columbia"	4	25,789
Det Danske Petrol. A	1	7,000
Total	25	150,242
Standard Oil Co. of N. Y.	11	62,654
Anglo-American Oil Co.	14	87,258
Tankers, Ltd.	10	69,868
British Admiralty	18	110,000
British Mexican Petroleum Co.	12	43,246

The above figures do not take into account the smaller river and harbor tonnage, nor any vessels owned by these concerns under American registry. In this connection it is worthy of note that the tSandard Oil Co. of New Jersey has, in addition to its foreign tonnage, the largest fleet of tankers under the American flag. The Dutch-Shell combine owns a large American fleet (through Shell Co. of California). Standard Oil of New York has an American fleet approximating 100,000 tons.

CITIES SERVICE EARNINGS

The Cities Service Co. reports gross earnings of $17,368,091 in the 12 months ended November 30, compared with $16,591,577 in the preceding year. Net to stock and reserves was $14,705,187, compared with $13,455,688.

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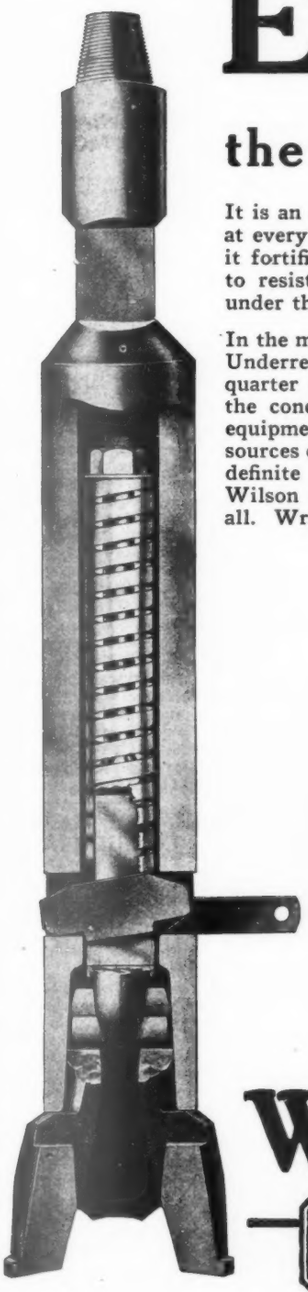

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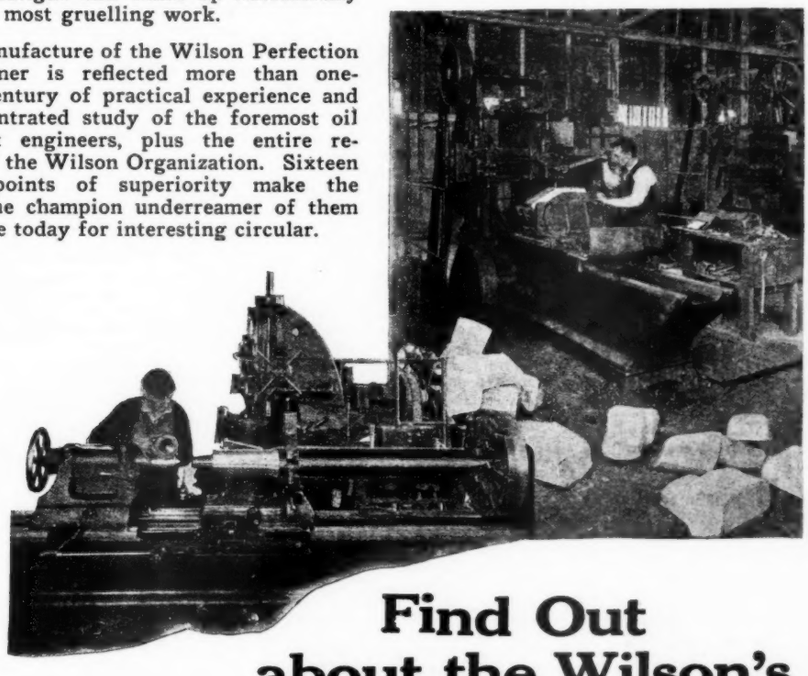

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REFINING AND MARKETING

KENTUCKY-CHICAGO OIL RATE REVERSED

The Interstate Commerce Commission reversed its original decision with reference to rates on crude oil from the eastern Kentucky fields to Chicago, holding that the rates in comparison with the rates from the Mid-Continent were "unreasonable to the extent that they exceeded 20 cents per 100 pounds prior to June 25, 1918, 25 cents from June 25, 1918, to July 24, 1918, both inclusive, and 24.5 cents thereafter and until August 26, 1920, and that for the future they will be unreasonable to the extent that they exceed or may exceed 29.5 cents." Reparation was awarded.

In its original decision, the commission held that a rate of 29 cents from Irvine and Beattyville, Ky., to Blue Island, Ill., within the Chicago switching district, was not unreasonable or unlawful in comparison with a rate of 24.5 cents then in effect from the Mid-Continent to Chicago.

Due to the fact that the average distance from producing points in the Mid-Continent territory to Chicago was given as 620 miles in the original report, and the average distance from the eastern Kentucky fields 452 miles, the commission finds that if the rates from the two areas were made the same, the Kentucky rate would still be relatively higher. This would allow for the mountainous character of the originating territory in eastern Kentucky, for the lesser volume of movement and for the lighter weight of oil, in the opinion of the commission.

COST OF FUEL OIL HIGH FOR COAL ROAD

CASPER, Wyo., Dec. 27.—The cost of fuel oil against coal for use on railroads is too high where the railroad is directly interested in coal mines and is not directly interested in oil producing or refining. This is the conclusion worked out by the Chicago & Northwestern Railroad in Wyoming and that road has started changing over a number of its oil burning locomotives to coal.

The use of oil is economical in that it permits of saving a large amount of labor in the operation of the road, a cold engine can be fired up to be ready to start out on the road in a half hour using fuel oil, while some machines require three hours with coal as a fuel. The cost of refueling is materially under that of coal and the work of the fireman on an oil burning locomotive is reduced to a minimum. The cost of the fuel oil, however, is such that it overbalances all these in cases where the railroad has its own mines and can produce its own coal at points along its route. The Chicago & Northwestern will not change over to coal entirely as it considers that some oil burners are necessary, especially on the passenger runs.

OIL BURNER MEETING

A meeting has been called for January 7 at the Hotel Wolverine, Detroit, Mich., of representatives of the manufacturers of oil burners for domestic use and members of the fire prevention and safety engineers organizations to draft rules regarding the installation of oil burners in homes. It is hoped the work can be completed in a single day.

TO BUILD SALT LAKE PLANT

The Wadolene Refining Co., a southern California concern, is going to build a plant at Salt Lake City, Utah, according to the Western Mineral Survey of that city. The company has a patent process for the manufacture of lubricating oil and for the cracking of heavy oils for gasoline.

A. O. M. A. MEETING

H. G. James, secretary of the American Oil Men's Association denies the report that his organization contemplates changing the date of its annual meeting at Kansas City in March. A great deal of earnest work will be done to make the convention a success, and the fact that the Western Petroleum Refiners Association will also hold its annual meeting in the same city is not expected to influence the attendance of oil jobbers and other members of the American Oil Men's Association.

IOWA PARK REFINERY IS DAMAGED BY FIRE

WICHITA FALLS, Tex., Dec. 27.—The plant of the Iowa Park Producing & Refining Co. near here was damaged to the extent of about $50,000 by fire Christmas evening. The blaze originated in the exchanger behind the stills and was due to the breaking of a pipe, according to the firemen who conducted a thorough investigation. It was beyond control when discovered and before it burned itself out had gutted the conductor boxes, towers, vapor lines and exchangers. They were wrecked beyond repair and the stills were also damaged to some extent.

By removing all machinery and apparatus and isolating the blaze, firemen from Wichita Falls and Iowa Park saved the refinery from being completely wiped out. The fire began about 7 o'clock Thursday evening and burned itself out before 3 o'clock Friday morning.

New equipment will be ordered immediately, according to P. F. Gwynn, head of the company, and the damaged parts of the plant will be rebuilt as soon as possible. This will require about 30 days. Mr. Gwynn estimated the loss at $50,000 and stated it was covered by insurance. He said officials of the company would conduct a thorough investigation to ascertain, if possible, the cause of the fire.

KANSAS FIGURING ON ITS GASOLINE TAX

TOPEKA, Kans., Dec. 27.—A 2-cent tax on gasoline in the State of Kansas would yield the State more than $3,500,000 annually, according to figures compiled from the report of Hugh Duff, State oil inspector. In the past year, the Kansas oil inspection department has tested and certified 184,258,250 gallons of gasoline and 49,574,350 gallons of kerosene, an increase of 34,000,000 gallons of gasoline and 2,000,000 gallons of kerosene, over the figures for 1923.

A 2-cent tax on gasoline in 1924 would have netted the State $3,685,165, and it is believed that next year this amount may be increased to $4,000,000 or more. With the additional money added by the Federal Government, the department points out, a road building program embracing approximately 200 miles of paved road annually could be undertaken.

In the past five years, the gasoline inspected in Kansas has jumped from 117,096,600 gallons to the present high figure, according to Mr. Duff.

COASTAL QUOTATIONS ON OILS EASE A BIT

HOUSTON, Tex., Dec. 27.—Quotations on pale oils and red oils eased a bit, being quoted at from ½ to 1 cent lower. Quotations on filtered stocks are unchanged. Refiners and sales agents report the markets fairly strong with very little stocks of any kind being offered. Some of the contracts for lubricating oils with the large saw mills in East Texas expire early next month and marketers say they will be renewed on the basis of the present levels.

FINED FOR SELLING GASOLINE ON SUNDAYS

CHATHAM, Ont., Dec. 27.—In Saskatchewan a test case in relation to the Sunday sale of gasoline was recently heard at Moose Jaw by Judge F. A. G. Ousely. Under the Lord's Day Act, an employe of a Moose Jaw garage was fined in the city police court for selling gasoline on Sunday. An appeal was entered.

In his decision affirming the conviction Judge Ousely declares that certain provisions of the Lord's Day Act are paradoxical in that a citizen may hire a horse and rig for a drive on Sunday and he is protected by statute, as is also a livery keeper; but if another citizen drives an automobile to a filling station and purchases gasoline, both he and the owner are liable to be prosecuted.

The judge remarked: "This situation is one with which I have nothing to do, and the remedy is by legislation only. The appellant here, not having made inquiries as to whether or not the parties to whom he sold gasoline were bona fide travelers, has not brought himself within the exemption of clause 'G' of the statute, and in my opinion was properly convicted in the court below, and the appeal is dismissed with costs."

LOUISIANA, ARKANSAS AND TEXAS STORAGE

HOUSTON, Tex., Dec. 27.—Stocks of crude oil in the fields of North and Central Texas on December 1 were estimated at 43,973,745 bbls., an increase of 25,714. Stocks in steel storage in the southern district, comprising the Gulf Coast region, decreased 142,707 bbls. to 7,282,298 on December 1, and earthen storage declined 211,470 bbls., to 7,950,788. Included in the Gulf Coast is the Luling Field, with 1,798,541 bbls. of crude oil in steel storage, most of which is only suitable for fuel oil. Miscellaneous crude stocks in the southern district, consisting largely of light oils from other sections of the country and stored in tank farms adjacent to Houston, increased 462,555 bbls. in November to 6,718,885 bbls.

In north Louisiana and Arkansas storage December 1 totaled 39,570,152 bbls., decline of 933,182 during November. Smackover Field had 18,871,829 bbls. of the total stored.

WOULD TAX MOTORISTS FOR ACCIDENT FUND

ANNAPOLIS, Md., Dec. 27.—Despite keen opposition against compulsory insurance, Maryland legislators are planning not only an insurance law to compensate persons injured in accidents, but they would tax every motorist to establish a fund from which such payments could be made. Thus, the compulsory purchase of insurance is replaced by a general tax.

The proposed law would be applicable only to personal injuries and would not compensate owners of damaged cars.

Decision on the tax to be levied is expected to be made from the State workmen's compensation schedules, based on earning ability. The tax thus collected would be put into a fund under the supervision of a person or commission to be named by the Legislature.

TAX NETS $330,000

AUSTIN, Tex., Dec. 27.—Texas' gasoline bill for November will reach $4,000,000, according to reports to the comptroller's department on the 1-cent gasoline tax. The State will get approximately $330,000 on the sale of 33,000,000 gallons of gasoline during November. The gasoline retailed at an average of above 12 cents, or at a total price of $4,000,000.

NEW PLANT FOR ATHENS, CALIF.

The California Gasoline Corp. is building a new plant at Athens, Calif., and has plans for the construction of several others, according to R. E. Bering, president of the concern. The company operates 12 compressors at Long Beach and has three others under construction at that place. Its daily production amounts to 30,000 gallons. The California Gasoline Corp. was formed through the consolidation of the Southwest Gasoline Co. and the California Gasoline Co. Mr. Bering denied that any merger or sale of the present organization was contemplated.

LOUISIANA REFINING 8 MONTHS EARNINGS

The consolidated statement of Louisiana Oil Refining Corp., filed with New York Stock Exchange for eight months ended August 31, 1924, shows earnings of $1,315,940 while other income was $39,984, making a total income of $1,355,924. Interest, depreciation, depletion, amortization, etc., totaled $502,047, leaving net profit before Federal taxes of $853,877.

Invincible Oil Corp. having been dissolved by consent of stockholders, the directors declared a first and final dividend in liquidation, payable in stock of Louisiana Oil Refining Corp., without par value, at the rate of one share for each share of Invincible Oil Corp., issued and outstanding. Certificates for the stock of Louisiana Oil Refining Corp. were ready for delivery December 26.

Consolidated balance sheet of Louisiana Oil Refining Corp. as of August 31, 1924, follows:

Assets: Current assets, $743,442; inventories, $1,092,401; prepaid expenses, $51,999; investments, $1,057,671; sinking fund, $38,902; fixed assets, $13,253,230; deferred charges, $308,797; total, $16,546,442.

Liabilities: Current liabilities, $687,132; purchase obligations, $776,250; accounts payable to subsidiaries, $678; contingencies reserve, $250,000; preferred stock, $411,800; common stock, $2,033,500; surplus, $12,387,082; total, $16,546,442.

OIL CITY MARKETS CONSIDERABLY WEAKER

OIL CITY, Pa., Dec. 27.—The coming of real zero weather all through this territory has considerably weakened the refined oil situation in the northwestern Pennsylvania district during the past week.

Gasoline is quite a bit weaker than it has been and the prices in many instances are off. Demand has diminished greatly and the actual consumption is away down. No one has his car on the road during these days when the temperature is so extremely low except the man who finds his automobile a necessity.

Kerosene is softer in price but the demand is not so bad at present. Wax continues to be strong. Fuel oil is weaker in both demand and price.

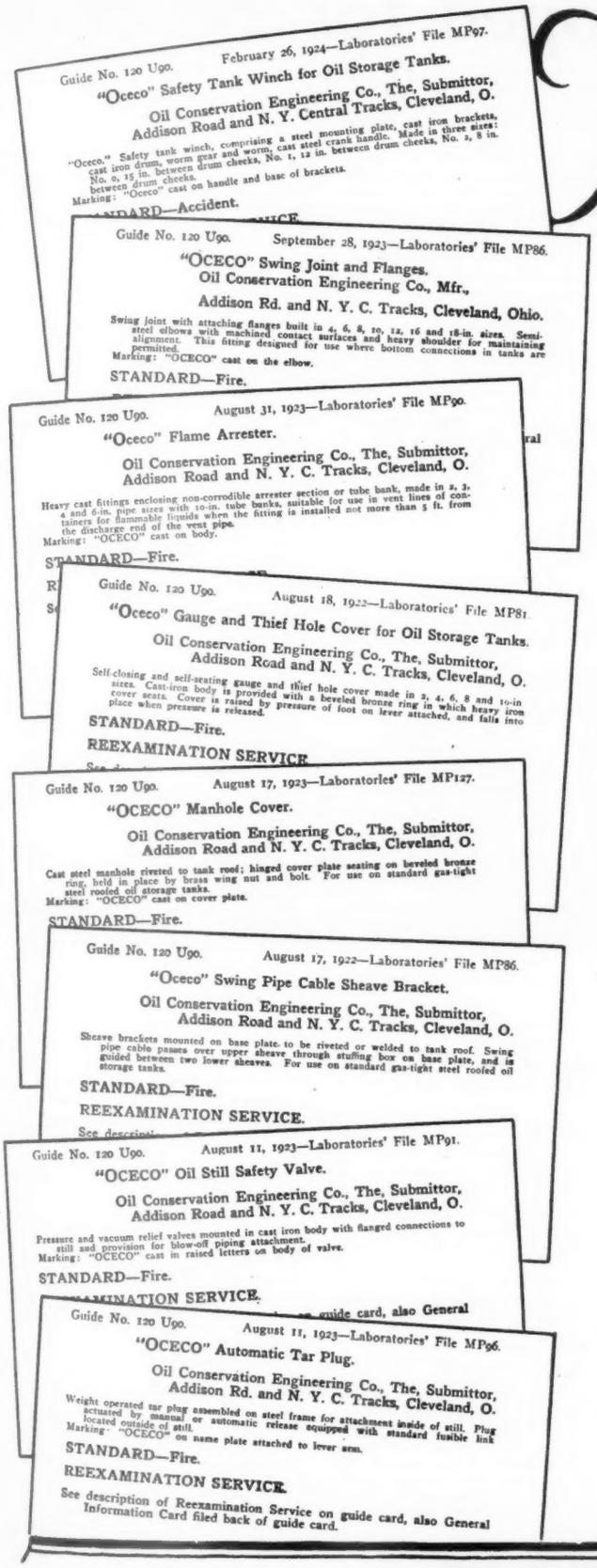
Cylinder stocks at present are not so good as they have been. However, the price is still holding up. Neutrals are a trifle softer in both demand and price.

GAS FOR BEAUMONT PLANT

Gas has replaced oil as fuel in the Beaumont, Texas, plant of the Magnolia Petroleum Co. The natural gas line from Northeast Texas and northern Louisiana has been connected to 28 stills at the Beaumont plant.

WISCONSIN JOBBERS TO MEET

The Wisconsin Independent Oil Jobbers Association announces that it will hold its January meeting at the Hotel Lorraine in Madison, Wis., on January 14.



Guide No. 120 U90. February 26, 1924—Laboratories' File MP97.

"Oceco" Safety Tank Winch for Oil Storage Tanks.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. Central Tracks, Cleveland, O.

"Oceco." Safety tank winch, comprising a steel mounting plate, cast iron brackets, cast iron drum, worm gear and worm, cast steel crank handle. Made in three sizes: No. 0, 15 in. between drum cheeks, No. 1, 12 in. between drum cheeks, No. 2, 8 in. between drum cheeks.
Marking: "Oceco" cast on handle and base of brackets.

STANDARD—Accident.

Guide No. 120 U90. September 28, 1923—Laboratories' File MP86.

"OCECO" Swing Joint and Flanges.

Oil Conservation Engineering Co., Mfr.,
Addison Rd. and N. Y. C. Tracks, Cleveland, Ohio.

Swing joint with attaching flanges built in 4, 6, 8, 10, 12, 16 and 18-in. sizes. Semi-steel elbows with machined contact surfaces and heavy shoulder for maintaining alignment. This fitting designed for use where bottom connections in tanks are permitted.
Marking: "OCECO" cast on the elbow.

STANDARD—Fire.

Guide No. 120 U90. August 31, 1923—Laboratories' File MP90.

"Oceco" Flame Arrester.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. C. Tracks, Cleveland, O.

Heavy cast fittings enclosing non-corrodible arrester section or tube bank, made in 2, 3, 4 and 6-in. pipe sizes with 10-in. tube banks, suitable for use in vent lines of containers for flammable liquids when the fitting is installed not more than 5 ft. from the discharge end of the vent pipe.
Marking: "OCECO" cast on body.

STANDARD—Fire.

Guide No. 120 U90. August 18, 1922—Laboratories' File MP81.

"Oceco" Gauge and Thief Hole Cover for Oil Storage Tanks.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. C. Tracks, Cleveland, O.

Self-closing and self-seating gauge and thief hole cover made in 2, 4, 6, 8 and 10-in sizes. Cast-iron body is provided with a beveled bronze ring in which heavy iron cover seats. Cover is raised by pressure of foot on lever attached, and falls into place when pressure is released.

STANDARD—Fire.

REEXAMINATION SERVICE

Guide No. 120 U90. August 17, 1923—Laboratories' File MP127.

"OCECO" Manhole Cover.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. C. Tracks, Cleveland, O.

Cast steel manhole riveted to tank roof; hinged cover plate seating on beveled bronze ring, held in place by brass wing nut and bolt. For use on standard gas-tight steel rooled oil storage tanks.
Marking: "OCECO" cast on cover plate.

STANDARD—Fire.

Guide No. 120 U90. August 17, 1922—Laboratories' File MP86.

"Oceco" Swing Pipe Cable Sheave Bracket.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. C. Tracks, Cleveland, O.

Sheave brackets mounted on base plate, to be riveted or welded to tank roof. Swing pipe cable passes over upper sheave through stuffing box on base plate, and is guided between two lower sheaves. For use on standard gas-tight steel rooled oil storage tanks.

STANDARD—Fire.

REEXAMINATION SERVICE.

Guide No. 120 U90. August 11, 1923—Laboratories' File MP91.

"OCECO" Oil Still Safety Valve.

Oil Conservation Engineering Co., The, Submittor,
Addison Road and N. Y. C. Tracks, Cleveland, O.

Pressure and vacuum relief valves mounted in cast iron body with flanged connections to still and provision for blow-off piping attachment.
Marking: "OCECO" cast in raised letters on body of valve.

STANDARD—Fire.

Guide No. 120 U90. August 11, 1923—Laboratories' File MP96.

"OCECO" Automatic Tar Plug.

Oil Conservation Engineering Co., The, Submittor,
Addison Rd. and N. Y. C. Tracks, Cleveland, O.

Weight operated tar plug assembled on steel frame for attachment inside of still. Plug actuated by manual or automatic release equipped with standard fusible link located outside of still.
Marking: "OCECO" on name plate attached to lever arm.

STANDARD—Fire.

REEXAMINATION SERVICE.

See description of Reexamination Service on guide card, also General Information Card filed back of guide card.

Approved!

What the Approval of OCECO Equipment by The Underwriters' Laboratories, Inc., Means

OCECO Equipment is submitted to the Underwriters' Laboratories, Inc. of Chicago for testing and approval before placing on the market.

Regardless of the practical oil field experience of those responsible for design, and the care and skill used in the manufacture of our products, we insist upon tests by this disinterested organization—an organization noted for its scientific accuracy, its facilities for testing performance and the soundness of its decisions.

To pass the rigid tests of these Laboratories any product must possess real merit—must *prove* its stamina, its ability to give real service in the field.

Take the Oceco Conservation Vent Unit. The Flame Arrestor, a part of this unit was submitted to the explosion test, and passed it successfully. Consider the Oceco Safety Tank Winch tested to breaking point to determine the safe loads these winches are capable of handling.

So "Approved by the Underwriters' Laboratories, Inc." is *your* assurance of satisfactory performance of this equipment on *your* tanks not only under ordinary but even under *extraordinary* conditions.

And experience bears witness to this fact!

The Oil Conservation Engineering Co.

Headquarters for Tank Equipment

Addison Road and N. Y. C. Tracks
Cleveland, Ohio

1158 Cunard Bldg., (25 Broadway)	New York City
1454 Monadnock Building	Chicago, Ill.
325 Iowa Building	Tulsa, Okla.
809 Texas National Bank Bldg.	Fort Worth, Texas
306 O-S Building	Casper, Wyo.
318 E. 12th St.	Los Angeles, Cal.
440 Howard Street	San Francisco, Cal.

Beaumont Export & Import Co., Perlstein Bldg., Beaumont, Tex., Distributors Gulf Coast Field and Republic of Mexico

OIL TANK **OCECO** EQUIPMENT

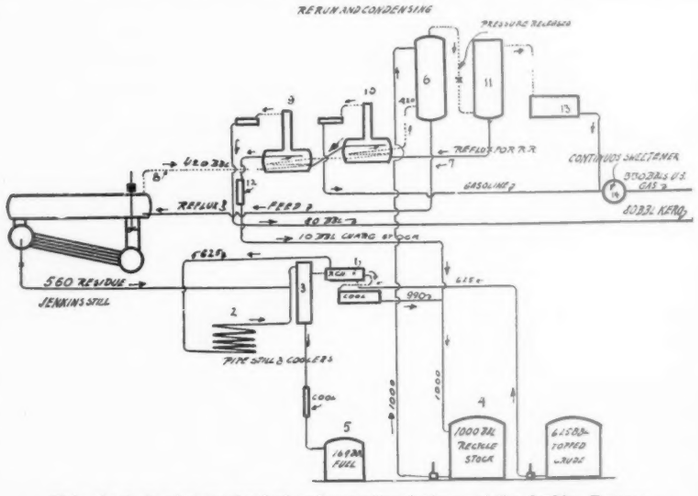
SAVES EVAPORATION AND PREVENTS FIRE

Standard Unit Developed for Process

Installation of Jenkins Process in Skelly Oil Co. Plant at El Dorado, Kans., Is Attracting Attention

Recent developments in connection with the installation of cracking units of the Jenkins Petroleum Process Co. have attracted notice to this process. The Jenkins process is now being introduced in the nature of a "standard unit" which is the result of several years of experimental work on the operation of four different types and sizes of units, all of which were designed on the same principle.

The work of the Jenkins process dates back to 1916, when experimentation was started and a small still was constructed. Commercial application of the principles were extended and five units of two different sizes were installed at the refinery of the Milliken Refining Co. at Arkansas City, Kans. The results were satisfactory, according to the company, and still larger sized units were built at other points and experimentation was extended leading to the present commercial development.



Flow chart showing mechanical and operating features of the Jenkins Process.

The outstanding installation at the present time in the Mid-Continent Field is that of the Skelly Oil Co. at El Dorado, Kans. This company contracted for three units of the Jenkins cracking process in 1923. They were started up in the early part of 1924. Since that time the company decided to install three additional Jenkins cracking units which were contracted for during the summer of 1924.

Standard Unit Developed

From the operation of the previously installed Jenkins units, the "standard unit" has been developed. The difference between the fourth type and the "standard unit" is the application of straight tubes to the still and the introduction of equipment for rerunning or refining the raw gasoline with the cracker itself, additional apparatus for more complete recovery of recycle oil, thus avoiding extensions or enlargements of a refinery with reference to its capacity to take care of the finishing up of products of a cracking plant, and achieving ultimate yields from either topped crude or heavy gas oil.

In reference to the Jenkins installation at the Skelly refinery, still No. 1 was connected up with a new tower on September 23, 1923. This still had started its run on September 10 and ran on stream until October 24, a continuous run of 44 days. Between September 10 and September 23, before the tower was connected up, the still produced 2,694 bbls. of New Navy gasoline. After the tower was placed in operation, the still produced 6,268 bbls. of gasoline, of which 3,058 bbls. was 65 gravity 370 end point, 28 color gasoline taken direct from the tower without rerunning.

The total gasoline produced during this 44-day run was 42.84 per cent of the fresh gas oil charged to the still, or a total gasoline production of 8,555 gallons per day while on stream. Losses in gas and soft carbon was 2.6 per cent. No coke was produced. The still was back on stream within 26 hours.

Principles Involved

The principles embodied in the Jenkins process are as follows: Application of heat sufficient to cause the cracking of the oil; application of sufficient pressure to prevent the oil from evaporating before sufficient cracking occurs; simultaneously circulating the whole body of the oil in a cyclic path through the multiple short passes of the heating tubes and the still; controlling the concentration of the carbon in the oil to allow satisfactory yield in heating the oil, and sufficiently low percentage of carbon to prevent deterioration of the uncracked oil; preventing solidification of the carbon in the uncracked oil by a special treatment of the carbon while cracking; removing the uncracked oil together with the suspended carbon and supplying uncracked oil to the system; receiving the uncracked heavy oil free from the suspended carbon continuously; and removing the cracked products in vapor form and finishing up that product into gasoline, kerosene and recycle oil continuously.

The manufacturers claim the following for yields from the process: Using topped crude—Gasoline, U. S. Motor, 52.8 per cent; kerosene, 41 gravity, 12.8 per cent; fuel oil, 14 gravity, low cold test, 27.0 per cent; and carbon, gas and loss, 7.4 per cent; total, 100.0 per cent. Gas oil—Gasoline, U. S. Motor, 66 per cent; kerosene, 41 gravity, 16 per cent; fuel oil, 14 gravity, low cold test, 10 per cent; carbon, gas and loss, 8.0 per cent; total, 100.0 per cent.

Cycle of Operations

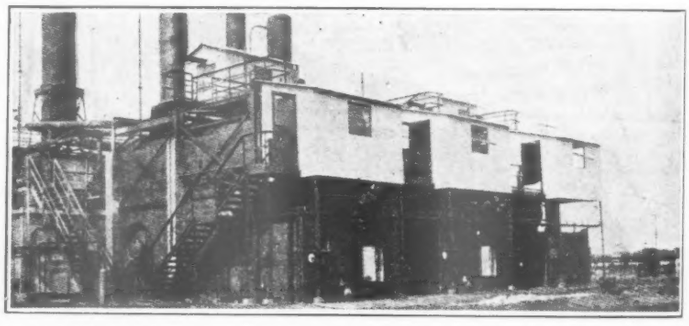
Typical cycle of operations is given as follows: On stream, 15 days, a total of 360 hours; relieving pressure and draining, 2 hours; steaming and cooling, 8 hours; cleaning tubes, 8 hours; heading up and putting on stream, 6 hours; total, 16 days or 384 hours. Two men are used on each operating shift and two extra men are used at the end of each cycle for cleaning.

The manufacturers state that the first cost of the cracking plant averages less than $300 per barrel of gasoline produced daily. The character of the process is such that the products of the cracking operations are identical with the products made from crude oil in reference to their physical properties. No unsalable product is made in the operation of the process. The "standard unit" includes equipment for cracking, rerunning and treating gasoline, recovery of recycle oil and produces high grade kerosene as a byproduct without entailing additional expense for enlarging the refinery facilities with the exception of facilities for power, steam and water. The "standard unit" produces 300 bbls. of gasoline and 10 bbls. of kerosene per cycle day either from 450 bbls. of gas oil or 560 bbls. of topped crude.

Explanation of Diagram

The explanation of the accompanying diagram showing the course of the charging oil through the system is given as follows with references to the designated parts shown on the flow sheet diagram. The topped crude is pumped into the heat exchanger (1) of the pipe still, where it is given an increased temperature. The final heating is finished in a pipe coil (2). The vapors are liberated in a separator (3) from the heated topped crude and from the Jenkins still residue. The resultant charging stock passes through the exchanger and cooler and is received in the rundown tank (4). The residue from the separator (3) is collected in the fuel oil tank (5) and is burned under the Jenkins stills and pipe still and at the other points about the refinery where heat is necessary. The contents of tank (4) are pumped into the pressure heat exchanger (6). Here the vapors from the Jenkins still preheat the oil which flows into the still through the line (7).

The vapors from the pressure still pass through the line (8) and in turn pass through the rerun stills (9) and (10) before entering the pressure heat exchanger (6). The pressure is released from the vapors before they enter the fractional condenser (11). The reflux from (11) enters the rerun stills (9) and (10). Vapors arising from (9) and (10) are condensed and cooled while the residue to the reflux from (11) is cooled through (12) and returned to the tank (4.) Vapors from (11) are condensed and cooled in (13) and the liquid passes through (14), a continuous sweetener together with liquid from the rerun still (10).



Three-unit installation of the Jenkins Process at the refinery of the Skelly Oil Co., El Dorado, Kans.

BUREAU OF MINES SHOWS VALUE OF GAS ANALYSIS

The practical value of gas analysis to the combustion engineer as a guide in the proper designing and operation of automotive engines is pointed out in a report recently issued by the Department of the Interior, through the Bureau of Mines. Gas analysis is relied upon to a great extent by the combustion engineer in the design and operation of power and heating plants, the Bureau of Mines emphasizes, but the automotive industry has made little use of gas analysis in the design and construction of internal combustion engines.

"Gas analysis enables the engineer to determine the quality of the mixture fed to the different cylinders with a high degree of precision," the report points out. "Briefly, the method consists in making an analysis of the exhaust gas from each cylinder, and depends mainly upon the design and shape of the intake manifold, the carburetor and grade of gasoline used.

"The present method generally employed to determine distribution is to enrich the mixture fed to the engine until one or more cylinders begin to misfire. This indicates those cylinders that are running 'rich.' Then the mixture is 'leaned' until misfiring again begins, which indicates those that are lean. In a way this method is satisfactory, but unless the ignition is perfect, misleading results will be obtained.

"Automobile exhaust gas is a complex mixture of gases, consisting mainly of carbon dioxide, carbon monoxide, oxygen, methane, hydrogen and nitrogen, and at times gasoline vapor and traces of unsaturated hydrocarbons. A complete analysis of the gas requires the services of an experienced gas chemist and a rather complicated apparatus. However, for the determination of distribution, a complete analysis of the exhaust is not necessary. All that is required is the percentage of carbon dioxide in the exhaust and the total carbon dioxide in the gas after the sample is burned in a slow-combustion pipette. The apparatus for making this determination consists only of a 100-c. c. measuring burette, a caustic pipette and a slow-combustion pipette. It is easy to manipulate, and dependable results may be obtained by an unskilled technician."

In Serial 2631, by G. W. Jones, W. P. Yant, and L. B. Berger, technologists of the Bureau of Mines, the results are given of tests showing how the relative distribution of fuel to the different cylinders of an internal-combustion engine can be determined by gas analysis. A simple portable apparatus for making the determination is described. A few tests are given showing results obtained from an engine having good distribution, and tests made under road conditions on an engine giving poor distribution. Copies of this report may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

Any cracking process limited in the kind of charging stock it can use, is limited in the profits it can make for you

The Dubbs Cracking Process has no such limitations

Universal Oil Products Company
Owners of the Dubbs Process
312 South Michigan Ave
Chicago Illinois

TEXACO

REG. U.S. PAT. OFF.

TEXACO

Petroleum Products

HIGH GRADE UNIFORM QUALITY

Gasoline	Greases
Kerosene	Cup Greases
Fuel Oils	Gear Greases
Bunker Oils	Gear Lubricants
Diesel Fuels	Axle Greases
Signal Oils	Wire Rope Lubricants
Miners Oil	Pale Oils
Gas Oil	Red Oils
Distillates	Black Oils
Spindle Oils	Floor Oils
Motor Oils	Waxes
Engine Oils	Asphalts
Dynamo Oils	Road Oils
Machine Oils	Asphalt Cement
Cylinder Oils	Pipe Coating
Cylinder Stocks	Roofing
Car Oils	Roofing Paper
	Roofing Cement

THE TEXAS COMPANY

NEW YORK 17 Battery Place | CHICAGO McCormick Bldg. | HOUSTON The Texas Co. Bldg.

Offices in Principal Cities

Export Dept.: 17 Battery Place, New York City

NORTH CENTRAL TEXAS

(Continued from Page 44)

underreaming; same company's No. 3 Hill account, fishing at 2,465 feet; same company's No. 5 Lowe, drilling at 1,700 feet; same company's No. 11 Tullos, account 1, reaming; Pender Production Co.'s No. 3 Keel, drilling at 2,805 feet; Prairie Oil & Gas Co.'s No. 15 Atkins, fishing at 3,260 feet; same company's No. 2 Caldwell, cleaning out at 3,285 feet; Republic Production Co.'s No. 2 Knox, drilling at 3,505 feet; Snowden & McSweeney's No. 5 Higginbotham, fishing at 3,175 feet; Buckeye Development Co.'s No. 8 Walker, drilling at 2,850 feet; Critten and others' No. 1 Post, drilling sand at 1,675 feet; Hart Oil Corp.'s No. 6 Hart, drilling at 3,450 feet; Landreth Production Co.'s No. 1 Wood, setting casing at 1,950 feet; Lewis Oil Co.'s No. 1 Brown, gas showing at 3,250 feet; Magnolia Petroleum Co.'s No. 7 J. W. Brown, drilling by bailer at 3,190 feet; same company's No. 8 J. W. Brown, drilling at 3,030 feet; same company's No. 5 McCauley, drilling at 3,600 feet; Pearson and others' No. 3 Williams, drilling at 470 feet; Schimmel and others' No. 1 Watson, drilling in black lime at 3,210 feet; Scott and others' No. 1 Curry, drilling at 1,400 feet; Sims Oil Co.'s No. 6-A Jackson, underreaming; Sun Oil Co.'s No. 6 Stoker, drilling at 3,165 feet; Texas Pacific Coal & Oil Co.'s No. 44 Binney, drilling at 300 feet; same company's No. 2 Hand, account 2, drilling at 210 feet; same company's No. 1 Veale, oil showing at 3,690 feet; Thompson and others' No. 2 Williams, drilling at 200 feet.

Eastland County

Dorothy Oil Co.'s No. 1 Elliott, oil showing at 2,940 feet; Eby and others' No. 6 Miller, drilling at 525 feet; Gallagher and others' No. 1 Goodwin, drilling at 1,025 feet; Magnolia Petroleum Co.'s No. 1 Gulf-Carruth, drilling at 2,725 feet; same company's No. 7 Harris, spudding; Reclamation Oil Co.'s No. 6 Bons, fishing at 2,195 feet; States Oil Co.'s No. 3 Davenport, drilling at 750 feet; same company's No. 14 Harrell, drilling at 600 feet; Burkett and others' No. 1 Stanton, drilling at 950 feet; Eastland Oil Co.'s No. 1 Hazel, spudding; same company's No. 1 Jordan, drilling at 3,150 feet; Knox-Lewis Oil Co.'s No. 1 White, drilling at 3,100 feet; Ladd and others' No. 1 Owens, drilling at 1,700 feet; Root and others' No. 1 Hazel, spudding.

Wildcats Drilling

Moore County: Amarillo Oil Co.'s No. 1-A Masterson, drilling in shale at 1,510 feet.

Carson County: American Refining Co.'s No. 3 Burnett, drilling in lime at 2,640 feet; Crosby Oil Co.'s No. 1 Burnett, drilling in lime at 2,690 feet; Marland Oil Co.'s No. 1 Burnett, hole caving at 2,630 feet; Silk and others' No. 3-A Burnett, setting casing at 2,995 feet; Skelly Oil Co.'s No. 2 Burnett, drilling at 2,600 feet; The Texas Co.'s No. 2-A M. C. Burnett, drilling at 2,385 feet; same company's No. 5 M. C. Burnett, drilling at 775 feet.

Gray County: Anderson and others' No. 1 Bradford, drilling at 900 feet; Dilliard and others' No. 1 Henry, drilling at 3,110 feet.

Wilbarger County: Atlantic Oil Co.'s No. 1 Parker, spudding; Bridwell and others' No. 2 Dill, drilling at 760 feet; same company's No. 6 Stephens, drilling at 350 feet; same company's No. 1 Waggoner, fishing at 880 feet; Dill Farm Oil Co.'s No. 1 Dill, drilling at 2,370 feet; Humble Oil & Refining Co.'s No. 1 Waggoner, drilling at 355 feet; Kolp and others' No. 1 Waggoner, drilling at 800 feet; Little Oil Co.'s No. 1 Youngblood, drilling at 1,235 feet; Mutual Oil Co.'s No. 1 Zipperle, drilling at 900 feet; Oklahoma Texas Refining Co.'s No. 1 Bowers, drilling at 2,050 feet; Oxford Oil Co.'s No. 1 Waggoner, underreaming; Ray and others' No. 4 Bond, drilling at 1,200 feet; Skinner and others' No. 1 Streit, drilling at 1,025 feet; South Vernon Oil Co.'s No. 6 Stephens, drilling at 1,060 feet; same company's No. 7 Stephens, drilling at 1,150 feet; same company's No. 8 Stephens, drilling at 1,120 feet; same company's No. 9 Stephens, drilling at 970 feet; same company's No. 10 Stephens, drilling at 700 feet; same company's No. 11 Stephens, drilling at 900 feet; Staley and others' No. 1 Waggoner, gas showing at 1,265 feet; The Texas Co.'s No. 1 Castlebury, drilling at 410 feet; Wells and others' No. 2 Waggoner, underreaming; Wood and others' No. 1 Boyer, drilling at 900 feet.

Baylor County: Magnolia Petroleum Co.'s No. 2 Portwood, drilling at 1,400 feet.

Clay County: Cumley and others' No. 2 Stine, underreaming; Knox-Finley and others' No. 4 Scott & Ramsdell, rigging to pump; Lone Star Gas Co.'s No. 46 Byers, setting casing at 1,610 feet; same company's No. 21 Martin, underreaming; Shappell Oil Co.'s No. 1 Goetze, drilling at 1,750 feet; Shelton Oil Co.'s No. 1 Boddy, drilling a sand at 1,070 feet; same company's No. 3 Boddy, drilling at 300 feet; Lesh and others' No. 1 Salmon, oil showing at 940 feet; Petroleum Production Co.'s No. 1 Howard, will swab at 1,395 feet; The Texas Co.'s No. 1 Salmon, drilling at 290 feet; Texhoma Oil & Refining Co.'s No. 1 Maddox, underreaming.

Throckmorton County: Hamilton and others' No. 1 Odell, drilling at 2,630 feet; McKnight and others' No. 1 Halley, drilling at 810 feet; McNeil and others' No. 1 Davis, drilling sandy shale at 1,260 feet; The Texas Co.'s No. 1 Smythe, gas showing at 600 feet.

Shackelford County: Humble Oil & Refining Co.'s No. 1 Green, drilling at 2,805 feet; Magnolia Petroleum Co.'s No. 4 George, drilling at 3,445 feet; Phillips Petroleum Co.'s No. 3 Lynch, drilling at 3,100 feet.

Palo Pinto County: Britton and others' No. 3 Strawn Coal Co., gas showing at 3,080 feet; Camerson and others' No. 2 Pollard, drilling at 650 feet; Hart and others' No. 1 Smith, setting casing at 510 feet; Little Caddo Syndicate's No. 1 Fitzgerald, drilling at 605 feet; same company's No. 2 Massie, drilling at 600 feet; Pender Production Co.'s No. 2 Semmons, putting on pump at 3,510 feet; Phillips and others' No. 1 Caudill, cleaning out at 3,800 feet; Wickens and others' No. 1 Williams, drilling at 2,475 feet.

Callahan County: Dutton and others' No. 5 Cathey, drilling at 1,000 feet; O'Donnell and others' No. 1 Cathey, drilling at 1,100 feet; Prewitt and others' No. 1 George T. Crane, drilling at 1,810 feet; same company's No. 2 George T. Crane, drilling at 960 feet.

Mitchell County: Eddleman and others' No. 1 Gist, drilling by tools at 2,880 feet; Humphreys and others' No. 1 Coleman, fishing at 3,200 feet; California Co.'s No. 1 Miller, drilling at 2,870 feet; Sloan and others' No. 3 Miller, drilling at 1,850 feet.

El Paso County: Burns and others' No. 4 fee, small show of oil at 4,800 feet.

Brown County: Canyon Oil & Gas Co.'s No. 1 Ellsberry, drilling at 960 feet; Gillmon and others' No. 6 Newton, drilling at 1,210 feet; same company's No. 7 Newton, drilling at 1,000 feet; Mahlstedt Mook Oil Co.'s No. 3 Newton, drilling at 1,125 feet; Slick and others' No. 1 Chambers, drilling in dark lime at 2,895 feet; Williams and others' No. 1 Newton, drilling at 360 feet.

Reagan County: Big Lake Oil Co.'s No. 1 University, pulling big pipe at 2,875 feet; California Co.'s No. 1 University, drilling at 2,650 feet; Grayson and others' No. 1 University, drilling at 770 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Hughes and others, drilling at 2,400 feet; Stover and others' No. 1 University, spudding; Texon Oil & Land Co.'s No. 1 University, drilling at 2,675 feet

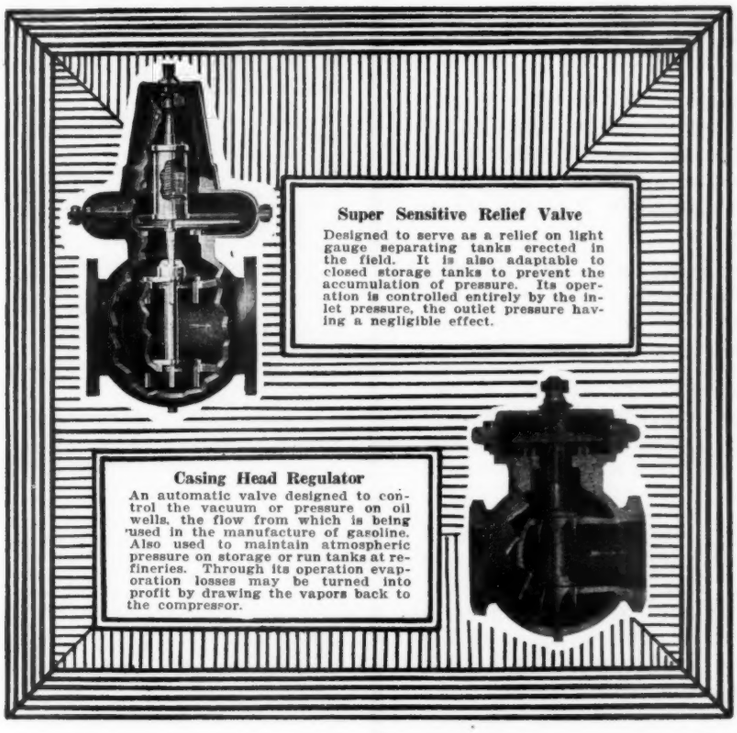
Pecos County: Arkansas Fuel Oil Co.'s No. 1 Blackstone, trying to straighten hole at 700 feet; Transcontinental Oil Co.'s No. 1 Sherbino, drilling at 1,000 feet; Plymouth Oil Co.'s No. 1 Perry, skidding rig.

PRODUCTION REPORT
Week Ending December 25
Burkburnett

Barkley & Meadows	605
Humble Oil & Refining Co.	485
Gulf Production Co.	700

(Continued on Page 94)

DAVIS VALVES



Super Sensitive Relief Valve

Designed to serve as a relief on light gauge separating tanks erected in the field. It is also adaptable to closed storage tanks to prevent the accumulation of pressure. Its operation is controlled entirely by the inlet pressure, the outlet pressure having a negligible effect.

Casing Head Regulator

An automatic valve designed to control the vacuum or pressure on oil wells, the flow from which is being used in the manufacture of gasoline. Also used to maintain atmospheric pressure on storage or run tanks at refineries. Through its operation evaporation losses may be turned into profit by drawing the vapors back to the compressor.

"Off your mind — When they are on your tank or line"

Davis Valves are real valves—comprising real performance, real reliability and real economy. Fifty years of experience in making good valves lends an atmosphere of reliability to Davis Valves which is admirably attested to by actual care free operation.

By equipping completely with Davis Valves you are reaping the benefit of a half century of accomplishment in valve manufacture. This time-tested perfection is demonstrated most forcibly when you compare them with other valves working under the same conditions.

LOOK INTO DAVIS VALVES OR LOOK OUT FOR VALVE TROUBLE

G. M. DAVIS REGULATOR CO.
Chicago, Illinois

WESTCOTT & GREIS

MEASUREMENT AND

They Must Not Stop!

"You can't stop the press." How many times have you heard that expression?" It is true! Millions of issues of newspapers must be printed.

Of equal importance are the train schedules. Big steel engines must keep going and keep going fast. People must reach their destination. Food, clothing, and building material must be transported to hundreds of cities.

In fact, innumerable engines, whether they be drawn by gasoline, steam, or electricity, must be kept going to serve the needs of humanity.

And necessary to every engine is oil! The supply of oil must be dependable. It must be relayed from the wells and the refiners to the retailers who sell the ultimate user.

The wide variety of oils and their uses makes it impossible for one refiner to stock all kinds. The retailer cannot economically afford the delay of long-distance buying from a dozen or more refiners. Neither can he afford to buy all his needs in huge quantities.

Consequently, the services of the Wholesale Oil Distributor—Acme Service—is essential.

We store oil in huge tanks. A hurry-up order from a user means nothing more than loading one or more of our tank cars and giving him quick delivery.

This is Acme Service—it is essential. Try it yourself—it pays.

(This is the eighteenth of a series of informatory advertisements on distribution problems with which the Oil Industry has to contend.)

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27

CHICAGO GASOLINE MARKET IS DULL

Weather Conditions Holding Down Consumption of Motor Fuels. Domestic Oil Burners Are an Important Factor in General Situation. Demand for Fuel Oil Is Improving

By John B. Waldo

CHICAGO, Dec. 29.—The curtain for the year will ring down on a cold and chilly city so far as the outside temperature is concerned but under the new conditions brought about by the introduction of the domestic oil burner as a means of heating so many of the homes in the city and surrounding territory, the oil man has a lot to do and is kept very busy doing it. It is becoming more and more evident that the oil burner is going to play a very important part in the industry from now on. The prejudice against it is being overcome by actual and successful demonstration. The thought that there might not be enough oil is answered by the inquiry, "Did you refuse to buy an automobile because of the possible shortage of gasoline?" This is usually a complete answer to the doubters as to the sufficiency of the oil supply. If gasoline fails then and not until then will there be a shortage of petroleum products and among these products from the winter of 1924-5 onward there is certain to be a large percentage of burner oil. The burners with their fine needle valves are not as favorably situated as are those which are built for a heavier oil but not necessarily anything heavier than a gas oil.

The gasoline market has been dull and weak in tone. The weather conditions are against any great use of the car. Then the jobbers have considerable quantities in store and they have their contracts to maintain them in supply.

Price Trend Downward

The price situation is temporarily dominated by sellers with stocks to move and as the demand is light they are pressing prices downward so fast that some of the oil men say that the quotations on gasoline are going down as fast as they went up and are liable to reach as low a level as that from which they started. These same oil men do not like the idea but they say what could be expected? The advance was made on conditions that became unfavorable just as soon as the weather broke. The change was more sudden and at an earlier date than expected and some of the marketers were caught but none badly damaged by the squeeze as present prices for U. S. Motor gasoline are at about what the gasoline cost over December and the average of selling prices for the month is above the average of costs.

Right now the common quotation for U. S. Motor gasoline is 7¾ to 8 cents, the latter out of Group 3 and the former out of North Texas. There are sales of cars in transit not many or important but widely quoted at 7¼ cents and possibly these prices will go lower before the last of the December purchases have been shipped. Some of these cars that are pressed for sale are owned by jobbers who in taking out what was due them on their old contracts have bought cheaply and can sell as low as anybody if they have no room to take in the cars in transit. And these cars in transit that are now offered at concessions because they must be sold were bringing a premium of one-quarter to one-half cent less than five weeks ago.

Marginal Contracts

The marginal contracts are being signed up slowly. The jobbers regard them as unfavorable and so they are by comparison with those made last year but they find in shopping that they can do no better. There are contracts at 3½ and 4 cents and there are reports of some at 4½ cents but the two former have been seen and read and there is really little difference in the conditions finally. One might pay a little better than the other and then it might not. The 4 cents margin sounds better than 3½ cents under the tank wagon or 5½ cents under the filling station price. There is much talk regarding who has and who has not signed marginal contracts and there is a good deal of misleading information being circulated innocently in most cases. One large jobber denies that he has renewed his contracts. It is strictly true for his contract was for two years and did not need to be renewed. Another also denies renewing but he has made a new contract with another source of supplies and in the long run the number of those who have contracts for 1925 will be found to be no less than a year ago and possibly greater.

In some cases the refiners before they will sign up with a jobber, have an understanding that he is to buy some of the profitable commodities such as lubricating oils as well as the gasoline. One of the largest says that his concern is tired of selling only the sugar and wants some of the canned goods and spice and cigar orders as well. Some propose to follow the example of one of the largest clothing manufacturers who insists that with an order for men's clothing must come a proportionate order for the boys' and children's sizes as well. Sell the whole line or lose the account is the plan of this clothing manufacturer and they make it work by extensive popular advertising and a high quality of product to back up the publicity. As the management of one refinery stated, we are ready to supply our trade with gasoline and they want a close price that will enable them to compete with any company. Yet when it comes to something on which there is a profit they go to not only ours but their own competitors for their supplies. One of the other large Mid-Continent refiners is working and has been for some time on this very line and when he has estab'ished a distributor as a customer it is not for motor fuel and a little kerosene alone but for his lubricating oils as well. There is, in the belief of the refiners, no reason why the distribution of lubs should not go with the distribution of gasoline and they intend to make the two work together, beginning now or as soon as they can get their ammunition ready.

Natural Gasoline Easier

Natural gasoline has eased off a little in this market but the demand is light. The higher gravities are being offered rather freely and the prices are right in line with the latest quotations for Navy grade. The chief inquiry is for quotations over January and the buyers believe that they will get better prices by waiting for the weather man to get in his work and are not hurrying matters. There has been a little business done over the first 15 days of January and from what can be learned it was largely at 8 cents. This is not attractive to marketers who say that there is going to be very little consumption for the coming two months at least in this territory and that much lower quotations will have to be made to get their orders. Refiners on the other hand are not making quotations right now and only in a few cases has there been even an offer. One or two refiners have asked for an expression of the price that the buyers would pay but they have not been given the chance to decline any bids with or without thanks. Buy as we sell, is to be the word of the jobbers and marketers and the refiner will probably run as he gets the orders and accumulate as little stock as possible. The industry is disposed to wait and see just how bad the weather man is going to do this winter.

Kerosene Lower

Kerosene has dragged and from 4¼ it has descended to the 4⅛ cents mark and there seems but one thing to do and that is to get busy and sell distillates.

(Continued on Page 94)

QUIETNESS IN EASTERN MARKETS; GENERAL PRICE INCREASES PROBABLE

By N. O. Fanning

NEW YORK, Dec. 27.—Quietness prevailed in the refined oil markets on the Atlantic Seaboard during the past week. The tone was generally firm, although signs of softness here and there were noted. Slight concessions are being made in gasoline in certain districts, although not general enough to constitute a threat to the present tank wagon structure. Consumption of gasoline is holding up unusually well. Tank car offerings are more numerous but it is difficult to duplicate the recent low prices. At present 11 and even 12 cents per gallon, as against 9 and 10 a month ago, are the ruling asking prices on tank car lots. Spot gasoline holds steady at 13¼ cents.

Due to the unusually good consumption of gasoline, eastern refiners are not adding to stocks at anything like the rate which was anticipated. The result is many of them are increasing crude runs and speeding up production of the product somewhat, in order to assure themselves of being in a good position before next Spring, which, it must be remembered, is only three or four months hence.

Expectations are things in the refined oil markets will remain quiet for a month or more. Wortham has stemmed the decline in crude output, and indications are the crude situation will not show much improvement for a while. With pessimism the rule at the turn of the year, the tendency toward overproduction this winter is expected to be much diminished. It is hoped, therefore, that when next summer does come the oil industry will be in a much better condition than last.

Refiners and marketers in this section will not hazard definite predictions of the outlook for 1925. They say with unanimity that the outlook will be what the industry makes of it. Belief in the near arrival of prosperity not only does not bring prosperity, but is more than likely to forestall it, as it has in the past. Curbing of production, they point out, is absolutely essential now, if the oil industry is to enjoy any degree of prosperity in 1925.

Although the eastern markets seem to be in a position where general price increases are probable, the consensus is that this is still a buyers' market, and it will take more than weeks to change it to a sellers' market, taking into account all the more probable developments. The industry has piled up too big a surplus to allow the possibility of a shortage in the near future. Therefore, refiners here believe 1926 will be the big year in oil, and not 1925.

Look for Big Exports

Even if substantial improvement does appear in the domestic markets in 1925, the oil companies on the Atlantic Seaboard are anticipating an increase in exports as the brightest spot on the horizon at present. This is based on the political and financial developments here and in Europe of the last two or three months. Europe is expected to be in much better buying position next year, and unless oil prices skyrocket, this commodity in its various forms is expected to be one of the big investments. Gasoline, lubricants and fuel oil are already in excellent demand, but inquiries and orders for the early part of 1925 indicate further buying of all of these products on the part of European countries.

New York oil export prices have remained unusually firm throughout the last few months, when domestic prices were rather weak. Some advances are expected next year. Probably kerosene, which has been unusually quiet for more than six months, will be the first to improve in price, but gasoline and fuel oil are also believed to be pointed higher.

Export prices for lubricating oils are now higher than since 1920. The demand has been so good as to force bidding, especially for cylinder stocks. Wax has also been in demand. Although the motor vehicle trade and use of wax in making candles for ecclesiastical ceremonies has accounted for a good part of the export demand for lubricants and wax, respectively, industrial revival has caused the real increase. Factories in England, France, Italy and Germany are speeding up considerably, according to latest reports from these countries.

Although the volume of oil exports is small compared with domestic consumption, it is traditional that a good export demand helps the domestic situation. The current year has been a record one in exports, and it is more than likely that what improvement has occurred this year is partly traceable to the export business.

Fuel Oil Tends Higher

The outlook for fuel oil now is toward higher prices. There has been a sharp drop in receipts of Mexican oil, and eastern refiners are believed to be seriously worried over the situation. Coincident with the recent advance of 10 cents per barrel in bunker oil at this port, it was announced that several liners would convert back from fuel oil to coal-burning. This tendency is likely to grow.

Gas oil is firm, with several contracts recently closed for 5¼ cents per gallon at refinery.

Exports Increase

Following a very small week, shipments of oil from New York for export reported during the past week showed a very substantial gain. Case exports were the feature, heavy shipments of gasoline, kerosene and lubricants having been reported. More than 9,000,000 gallons of these three products combined were exported in cases. Case shipments of lubricating oil, amounting to 274,440 gallons, were the largest of any week this year.

Bulk exports were fairly heavy, gasoline bulk shipments amounting to 1,276,751 gallons and kerosene 3,995,417 gallons.

Wax Exports Heavy

A feature of the export movement during the week was the exportation of 3,724,380 pounds of wax in bags. These shipments were widely distributed among the countries of Europe, Asia and South America.

The following table shows principal exports of petroleum and petroleum products from New York as reported during the past three weeks (figures in gallons unless otherwise noted):

Item and how shipped—	Week ended Dec. 24	Dec. 17	Dec. 10
Gasoline—			
Bulk	1,276,751	.....	2,250,554
Cases	3,156,530	330,000	1,908,690
Kerosene—			
Bulk	3,995,417	.....	3,993,042
Cases	5,599,560	626,420	2,144,040
Lubricating oil—			
Bulk	582,683	.....	.....
Barrels	909,342	539,406	1,105,188
Cases	274,440	43,650	67,930
Lubricating greases—			
Barrels	905	.....	.....
Paraffin wax—			
Bags, lbs.	3,724,380	860,200	1,443,860
Barrels	2,201	1,992	5,247
Petroleum asphalt—			
Barrels	1,171	.....	.....
Crude oil—			
Barrels	3,375	1,286	.....

Of the bulk exports, cargoes were reported destined for England, Ireland and Denmark.

The Vacuum Oil Co. shipped 582,683 gallons of lubricating oil to England. The Anglo-American Oil Co. exported one bulk cargo containing 1,482,880 gallons of kerosene for England and a like amount for Ireland. Standard Oil Co. of New Jersey sent one bulk cargo of oil to Denmark, of which 1,029,658 gallons consisted of kerosene and 1,276,751 gallons gasoline.

Large Case Shipments

Two large case shipments of kerosene were reported, one of 112,000 cases bound for Argentina and interior countries of South America, another of 93,999 cases destined for China.

Oil Receipts Decline

Receipts of crude and refined oil at Atlantic ports during the week ended December 24 are estimated at 361,000 bbls. daily, against 419,000 bbls. the week before, a decline of 58,000 bbls.

Ot the total receipts, 253,000 bblsfl daily were from Gulf Coast ports, or approximately 70 per cent. Receipts from the Pacific Coast averaged 89,000 bbls.

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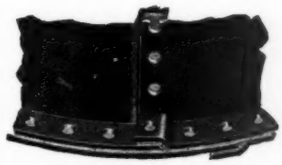

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daily, against 66,000 bbls. daily during the week ended December 17.

Imports Small

Imports at Atlantic Coast ports averaged 19,000 bbls. during the past week, two cargoes from Mexico alone being reported. Coming after the small imports of the preceding week, 62,000 bbls., this movement indicates at least a temporary interference with shipments of oil from Mexico. The small imports are also significant in view of the known scarcity of heavy oil here.

The following table, showing imports of oil at Atlantic ports during the last 20 weeks, shows the course of imports which are largely from Mexico: (Barrels daily):

Week ended—Bbls.		Week ended—Bbls.	
Dec. 24	19,000	Oct. 15	59,900
Dec. 17	62,000	Oct. 8	144,000
Dec. 10	127,000	Oct. 1	55,000
Dec. 3	127,000	Sept. 24	99,000
Nov. 26	98,000	Sept. 17	100,000
Nov. 19	107,000	Sept. 10	89,000
Nov. 12	130,000	Sept. 3	137,000
Nov. 5	206,000	Aug. 27	109,000
Oct. 29	57,000	Aug. 20	82,000
Oct. 22	90,000	Aug. 13	92,000
Average for 10 weeks	102,300	Average for 10 weeks	96,600

The average for the last four weeks is 84,000 bbls. daily.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic ports from Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 13 months (figures in barrels):

	Week ended— Dec. 24	Dec. 17	Dec. 10
Gulf Coast	253,000	291,000	306,000
Pacific Coast	89,000	66,000	90,000
Imports	19,000	62,000	127,000
Total	361,000	419,000	523,000

Daily Averages by Months 1924—	Gulf	Pacific	Imports	Total
November	246,000	80,000	150,000	476,000
October	246,000	120,000	88,000	454,000
September	270,000	104,000	101,000	475,000
August	310,000	127,000	84,000	521,000
July	318,000	85,000	114,000	517,000
June	302,000	133,000	136,000	571,000
May	276,000	122,000	144,000	542,000
April	262,000	143,000	123,000	528,000
March	201,000	137,000	130,000	468,000
February	174,000	175,000	108,000	456,000
January	127,000	159,000	79,000	365,000
1923—				
December	184,000	153,000	119,000	456,000
November	186,000	141,000	110,000	437,000

Imports are largely from Mexico with an occasional shipment from Peru, Trinidad and Venezuela.

NORTH CENTRAL TEXAS

(Continued from Page 90)

Magnolia Petroleum Co.	2,990	
McMan Oil Co.	335	
Panhandle Refining Co.	335	
Prairie Oil & Gas Co.	40	
Sinclair Oil & Gas Co.	75	
The Texas Co.	530	
Texhoma Oil & Refining Co.	430	
Miscellaneous	9,885	
Total		16,410
Electra		
Empire Gas & Fuel Co.	1,160	
Humble Oil & Refining Co.	165	
Griswold Oil Co.	255	
Gulf Production Co.	885	
Magnolia Petroleum Co.	4,220	
McMan Oil Co.	195	
Panhandle Refining Co.	70	
The Texas Co.	3,990	
Texhoma Oil & Refining Co.	2,015	
Miscellaneous	5,475	
Total		18,430
Iowa Park		
Griswold Oil Co.	70	
Gulf Production Co.	30	
Humble Oil & Refining Co.	15	
Magnolia Petroleum Co.	460	
Panhandle Refining Co.	65	
Texhoma Oil & Refining Co.	40	
Miscellaneous	3,220	
Archer County		
Empire Gas & Fuel Co.	695	
Griswold Oil Co.	520	
Gulf Production Co.	2,330	
Humble Oil & Refining Co.	515	
Magnolia Petroleum Co.	445	
Panhandle Refining Co.	3,220	
Prairie Oil & Gas Co.	1,180	
The Texas Co.	630	
Texhoma Oil & Refining Co.	2,835	
Miscellaneous	29,045	
Petrolia		
Gulf Production Co.	55	
Magnolia Petroleum Co.	20	
The Texas Co.	65	
Miscellaneous	200	
Total		45,655
Stephens County		
Empire Gas & Fuel Co.	75	
Gulf Production Co.	1,240	
Humble Oil & Refining Co.	975	
Magnolia Petroleum Co.	640	
Mid-Kansas Oil & Gas Co.	1,230	
Prairie Oil & Gas Co.	960	
Sinclair Oil & Gas Co.	100	
Sun Oil Co.	275	
The Texas Co.	1,870	
Texas Pacific Coal & Oil Co.	940	
Miscellaneous	6,640	
Total		15,645
Eastland County		
Gulf Production Co.	355	
Humble Oil & Refining Co.	80	
Magnolia Petroleum Co.	550	
Panhandle Refining Co.	330	
Prairie Oil & Gas Co.	635	
Sinclair Oil & Gas Co.	415	
The Texas Co.	270	
Texas Pacific Coal & Oil Co.	965	
Miscellaneous	3,100	
Total		6,700
Other Fields		
Strawn—		
Texas Pacific Coal & Oil Co.	235	
Miscellaneous	460	
Moran—		
Empire Gas & Fuel Co.	60	
Humble Oil & Refining Co.	325	
The Texas Co.	140	
Texhoma Oil & Refining Co.	140	
Miscellaneous	1,875	
Coleman County—		
Miscellaneous	70	
Brown County—		
Miscellaneous	890	
Comanche-Eastland—		
Humble Oil & Refining Co.	210	
Magnolia Petroleum Co.	1,235	
Mid-Kansas Oil & Gas Co.	250	
Sinclair Oil & Gas Co.	40	
The Texas Co.	185	
Texas Pacific Coal & Oil Co.	140	
Miscellaneous	2,005	
Young County—		
Gulf Production Co.	90	
Sinclair Oil & Gas Co.	440	
Panhandle Refining Co.	175	
The Texas Co.	30	
Miscellaneous	3,010	
Mitchell County	1,525	
Reagan County	10,300	
Jack County	25	
Scurry County	55	
Carson County	930	
Hutchinson County	175	
Callahan County	1,555	
Wilbarger County	5,280	
Total		31,850
Total this week		134,690
Total last week		134,740
Loss		50

CHICAGO GASOLINE MARKET IS DULL

(Continued from Page 92)

The winter demand has been light for kerosene and there is no strength anywhere in sight unless there be an unexpected order but exporters wait for the last ⅛ cent every time and sometimes wait too long. It is another story with distillate and the market is growing very active and prices are advancing with the increase in the demand. Sales are reported of 38-40 straw distillate at 4 cents and 4¼ cents is asked and will be paid if the refiner waits as the consumption is very large and the buyers must have supplies.

Refiners have been watching the market and they are in some cases ready to run distillates as soon as they believe that it will pay them to do so. There is talk that with the increase of the number of burners in use the time will come when the refiner will run three chief products, gasoline, distillate and fuel oil, the second named to include all that burners will use with efficiency and kerosene will be a specialty like V M & P naphtha today. The burner manufacturers should plan to use a fuel above the 26-30 fuel oil and heavier grades, for which there will be a sufficient demand and below the light distillates as the latter can be run with the gas oil and 30-32 fuel oil to make a burner oil in the nature of a blend.

Fuel Oil Demand Growing

Fuel oil is sparingly offered here as yet and the demand is growing day by day, not in "leaps and bounds" as some would like to have it do but steadily as the various consuming industries prepare for a larger business. The chief activity outside of the farmers' demands will be from the railroads, automobile makers and the builders.

Some of the steel companies are pushing up their purchases and they expect to use still larger quantities after the fore part of January. There is a lot of inquiry and the usual result of the quoting of prices is for the purchasing agent if he has not been in the market recently to make a sound that resembles great surprise and ask what is up that such prices are asked. Sometimes he comes back after a round of the sellers in a decidedly different mood to make the best of the situation. If he is a real good customer he might get a few cars today for spot delivery at $1.15, just ordinarily good $1.20 and not so good $1.25. For January delivery the price is now $1.25 on all hands and the buyers might be told that they are fortunate to get good 24-26 clean refinery fuel oil for that price as the Smackover product, a good fuel oil for certain purposes, has

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Already the best known rotary tong, and the most popular in every field. NO BUSHINGS. A wide range of take-up with perfect grip. Takes drill pipe, collar and tool joint without bushings or adjustment, *and without damage.*

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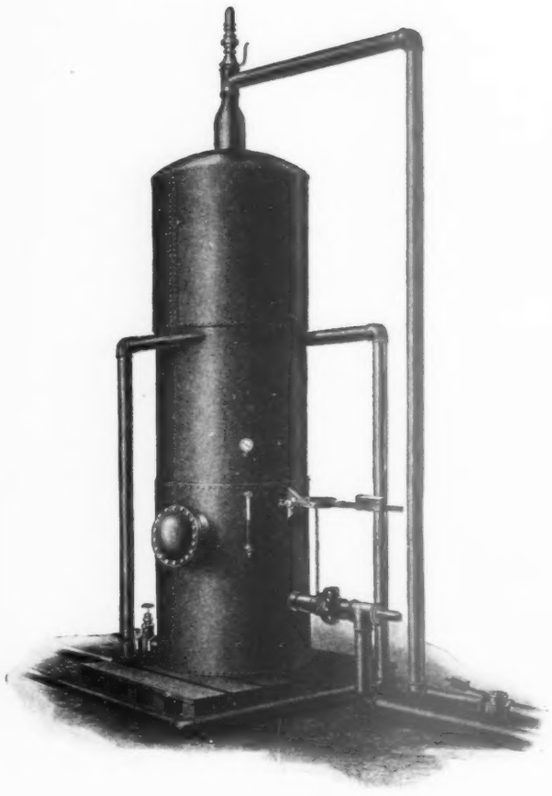

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sold at $1.20 in this market during the week.

Gas Oil Quiet

Gas oil is quiet and rather easy in tone. There is little inquiry and only a moderate business which does not seem to improve as it was expected to do. Gas oil is selling at the price of a good 26-30 fuel oil of which the offerings are light and which is scarce. It might as well be run in the fuel oil and save a lot of bother and increase the supply of the lighter fuel oil, at least that is the opinion of many oil men here.

Refiners of lubricating oils are not in accord as to the market conditions. This may be partly owing to the different class of trade that they seek to sell. In some cases the business is reported large and includes automobile oils sold to jobbers, bright stocks and neutrals with the compounder as the chief customer and paraffin oils and wax to the exporters. There is no hard and fast line but running over a big bunch of orders this was the destination of the bulk of the various goods sold. Another source of supply with its own compounding plant selling chiefly to jobbers stated that business was picking up but could be a lot better and would be after inventory, which sounds natural and reasonable. The same refiner said that the industrial demand was very promising as many of their customers were getting their plants in shape for additional business and this meant a lot of oil to limber up machines not steadily or recently in use. A third that sells in tank cars only and in a good part for export stated that their business was not very active but that they had no reason to complain and that their export business was growing steadily. There is evidently a lot of preparing to go, and when the word is passed around, the result will be a greatly improved demand and it is hoped better prices. There is still a lot of price cutting going on with very active competition for all orders.

Tank Wagon Markets

Tank wagon markets show very little change. There are no announcements of any changes in prices. There are many oil men who believe that there will be no change until the winter is beginning to draw to a close and the present prices will be held until February and possibly March. The situation with the country jobbers is serious right now as to running their trucks. The continued succession of cold waves with snow between is making deliveries very difficult and greatly restricting the use of automobiles.

OKLAHOMA FIELDS

(Continued from Page 40)

The Magnolia Petroleum Co. has a rotary rig up for No. 5 Johnson, SE cor. SE NE, Section 24-1s-9w.

The Carter Oil Co. was rigging up to deepen No. 4 Cox, NW cor. NE NE, Section 25-1s-9w, from the old depth of 1,857 feet.

The Magnolia Petroleum Co. has a rig up for No. 2 Colbert, NE cor. NW NE, Section 24-2s-8w.

The Coline Oil Co.'s No. 2 Malicky, CEL NW NE, Section 31-1-8w, was drilling at 800 feet.

The Lone Star Gas Co. was rigging up to deepen No. 8 Brown, NE cor. SE NE, Section 30-1s-8w. The old depth was 2,278 feet.

The Magnolia Petroleum Co. was running the 15½-inch casing to 245 feet in No. 1 Harris, C NE NE NW, Section 3-2s-5w.

The Cameron Refining Co.'s No. 1 Tucker, C SE SE SE, Section 5-3s-4w, was spudding in at 120 feet.

Other Oklahoma Operations

The C. & O. Drilling Co. had a rig up for No. 1 M. Sanders, NE cor. Section 29-11-7w, in Canadian County.

The Knox Petroleum Co. had a rotary rig up for No. 1 Lindsay, SW cor. NE NW, Section 35-3-5w, Grady County.

A. D. Morten's No. 1 Williams, SW cor. SW NE, Section 9-8-15w, in Washita County, was dry and abandoned at 3,115 feet.

White and others' No. 1 Bowman, SW cor. NE SW, Section 26-7-22w, Greer County, was dry and abandoned at 1,290 feet.

Fisher and others' No. 1 Day, C SW NW, Section 13-5s-13w, Cotton County, was dry at 2,571 feet.

The Brogan Oil Co.'s No. 2 McKenna, NW cor. SE, Section 11-5-9w, Caddo County, was dry and abandoned at 290 feet.

E. A. Hutchinson's No. 1 Lee, SE cor. SW SE NW, Section 35-15-16, Muskogee County, was being rigged up.

The Deep Rock Oil & Refining Co. has a rotary on the ground for No. 1 Goodnow C SW NE, Section 23-18-3, Payne County.

ROCKY MOUNTAIN AREA

(Continued from Page 50)

ployé, met his death in a tank while endeavoring to obtain some crude oil for use in a camp stove. Rumfelt had taken a can and started to a tank near the camp, but he changed his direction and went to another tank where a well was flowing into, and it is thought he was overcome by the gas and fell into the partly filled tank where his body was found shortly afterwards.

The test drilling north of Riverton, in Fremont County, on the Sheldon Dome, Section 15-5-2, by the Mack Oil Co. has encountered a showing of gas at 655 feet and a showing of oil at 750 feet in the shale. This is the third well to be drilled on this structure, the first having found some gas and oil in the first Wall Creek sand that became exhausted and then after the well was abandoned, started flowing. A second well was drilled on the west side of a fault that was dry and now a third attempt is being made. The present test is taking its fuel from the first hole which is now making about 15 bbls and considerable gas, more than enough for the drilling well.

ARLITT STANDING PAT

AUSTIN, Tex., Dec. 29.—J. L. Arlitt, Austin investment banker, is "standing pat" on his contract with the Mexican Government for the issue of $50,000,000 bonds in this country; bonds are now being printed in Austin, he announced following the statement of Sr. Pani, Mexican financial agent in New York, that the bond issue was cancelled because of delays. Only the president of the republic of Mexico can abrogate the contract, Mr. Arlitt insists, and until the question of rescinding the agreement is taken up with that official, Mr. Arlitt says he will regard the contract as standing good.

OIL MOVES LONDON TRAFFIC

Nearly half of all London's street traffic is now being carried by omnibuses. In 1924 3,000,000,000 persons were carried by the buses, subway trains and street cars of London; and more than 1,300,000,000 of them were carried by the buses. There are now 4,300 of these buses which last year traveled 153,000,000 miles. The buses are steadily gaining in the number of passengers carried, while the subway trains and street cars are carrying fewer and fewer every year. In fact, the buses are the only bright spot, financially, in the transport situation, in London.

1925 MOTOR SALES

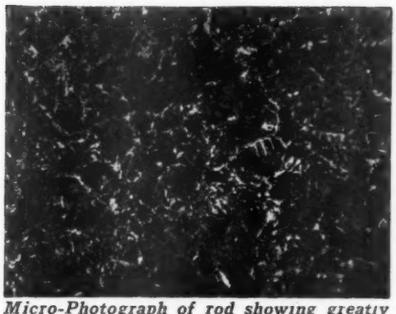
DETROIT, Mich., Dec. 27.—Automobile sales next year will approximate 3,500,000, is predicted by C. A. Vane, general manager of the National Automobile Dealers' Association. He expects an active and prosperous year in the industry.

C. E. HERMAN DIES

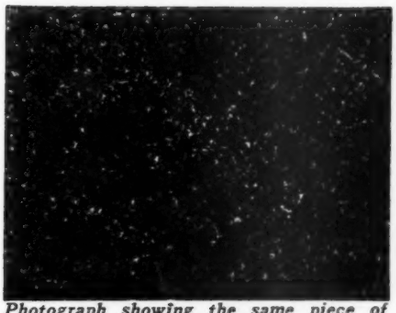
NEW YORK, Dec. 27.—Charles E. Herman, 43, financier and oil man, is dead. He was executive vice president of The Texas Co., president of the Carib Co., vice president and director of the Midland Securities Co., and director of United States Realty & Improvement Co.

The Same OUTSIDE — *but far different* INSIDE

THE NEW JONES FORGED END RODS



Micro-Photograph of rod showing greatly enlarged grain structure of Sucker Rod Steel when it has been heated to a forging temperature and cooled in air.



Photograph showing the same piece of steel after being normalized. Note the dense grain structure, which results in greatly increased strength.

THE Forged ends on the new JONES RODS are unlike any other forged end rod, because, first: the great care used in the forging operation to assure an even flow of metal—and, second, the heat normalizing treatment, which tends to restore the metal to its original structure.

There are no defects in JONES Forged End Rods, made of special analysis steel, with the perfected forged ends, they are today the finest, strongest sucker rods made.

Try them and prove our claims

A booklet, the "Inside Story," is ready for you—may we mail you a copy?

The S. M. JONES Co. Toledo, Ohio.

Mid-Continent Office—601 Wright Bldg., Tulsa, Okla.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

FOR SALE—Oil leases near drilling wells Logan and Kingfisher Counties. Seven wells going down. H. M. Godfrey, Crescent, Okla.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

FOR SALE in the Kentucky oil fields 45 bbls. settled production; lots of room on lease for additional development. Address W. P. Harley, Bowling Green, Kentucky.

FOR PANHANDLE oil leases and drilling contracts write Dr. W. R. German, Canadian, Tex.

FOR SALE BY OWNER—Interest in several shallow settled producing properties, Southeastern Kansas. Several locations to drill. Very reasonable. No brokers. Box A-531, The Oil and Gas Journal, Tulsa, Okla.

I HAVE six thousand acres under lease (five years, one dollar rentals) in southern Oklahoma on structure.

Spent all my money on one test well with rotary rig. I now want an experienced party who is capable and financilaly able to drill another test on this sturcture.

I have information from first well showing just where tests should be made before drilling deper.

I have complete rotary rig and can secure string of cable tools.

If interested, state what you are in position to do. Don't care to hear from promoters.

Address Box A-543, The Oil and Gas Journal, Tulsa, Okla.

ATTRACTIVE BLOCK, solid, University lands, Crockett and Reagan Counties, for sale or drilling. P. R. MacIntosh, 215 Neil P. Anderson Bldg., Fort Worth, Tex.

REAGAN COUNTY LEASES

$3.50 an Acre

TEXAS OIL MAP FREE

Lease 4 miles north of Wrightsman test in Reagan County can now be had for $3.50 an acre. Well is now drilling. Mr. Wrightsman is a very successful operator from Oklahoma. Many big companies hold leases nearby. We also have many other leases along Marathon Fold and Balcones Fault. Here are a few of them:

Gaudalupe County	$3.00 an acre
Pecos County	1.00 an acre
Medina County	.50 an acre
Gillespie County	.10 an acre
Kerr County	.50 an acre
Atacosa County	2.00 an acre
Karnes County	2.00 an acre
Zapata County	1.25 an acre
Bexar County	3.00 an acre
Hays County	.30 an acre
Sterling County	1.00 an acre
Coke County	1.00 an acre
Irion County	1.50 an acre
Bandera County	.40 an acre
Wilson County	3.00 an acre
Comal County	.35 an acre
Travis County	.35 an acre
Terrell County	.75 an acre
Concho County	1.50 an acre
Nolan County	1.00 an acre
Schleicher County	1.00 an acre
Sutton County	1.00 an acre
Reagan County	3.50 an acre
Crane County	1.00 an acre
Upson County	1.00 an acre

The above are prices in tracts of 10 acres. Prices are less for larger tracts. All leases are now 5 or 10-year commercial leases giving the buyer seven-eighths of the oil and requiring no drilling. Get our free map of Texas showing Balcones Fault and Marathon Fold and our list of leases before you buy elsewhere. We will save you money. Write today. No obligation.

GULF REALTY CO.
293 Bedell Bldg. San Antonio, Texas

LEASES—PRODUCTION

100 ACRES—2 miles from 2 drilling wells; best structure in Jefferson County. For quick deal $25 per acre. J. G., Box 153, Ringling, Okla.

FOR SALE—Four hundred acre lease, one-quarter mile from Wilcox test, in Elk County, Kansas. Also two hundred acres, on good structure, in Chautauqua County Kans, Box A-540, The Oil and Gas Journal, Tulsa, Okla.

WE OFFER 80-acre lease in the shallow oil field 300 to 500 feet deep, Clark County, Illinois, for $1,200. We will complete a well 200 feet offset 500 feet deep if necessary to make a well. Box 192, Rockville, Ind.

LEASES—Southeast Kansas being redrilled; chance for shallow, and Wilcox sands. Cheap drilling; Wilcox, 1,200 to 1,600 feet; don't miss this play while acreage is reasonable; $2 to $5 per acre. Write, Lapham & Co., Chanute, Kans.

WILL GIVE 3,000-acre lease in semiproven territory on top Jewet Structure, in Grant County, Arkansas, for drilling test well. Log 2,020 feet furnished. Good chance for party wanting to develop new oil field. Write Box 681, Little Rock, Ark.

LEASES—PRODUCTION

FOR SALE — 15,200 acres Montana land with 95 per cent oil rights; 85 per cent of land tillable. Near good town and railroad. Can give clear title. Land lies in oil structure. Can furnish geology. Owner will take $9 per acre for quick sale. Box A-537, The Oil and Gas Journal, Tulsa, Okla.

NORTH TEXAS

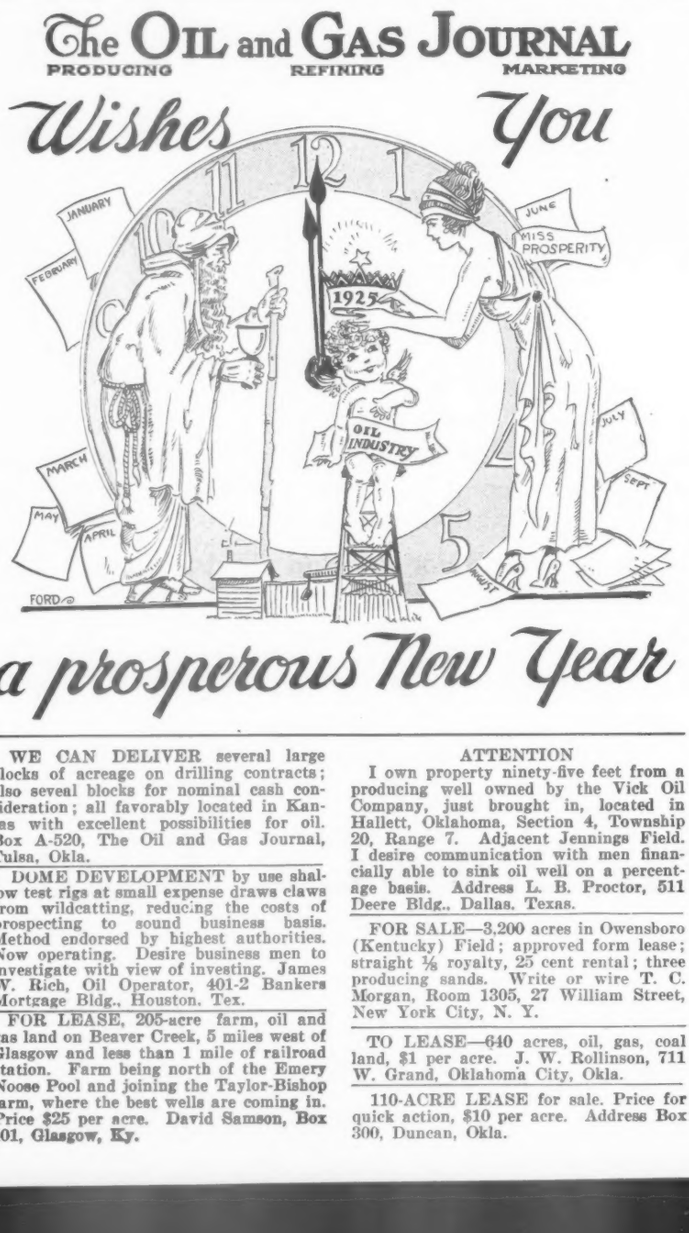
Shallow field leases, including offsets, at low prices. Offsets to producing leases in Archer County have sold as high as $900 cash per acre. Chance for excellent profits. Write for maps and prices. P. R. MacIntosh, 215 Neil P. Anderson Bldg., Fort Worth, Tex.

ROYALTY

"Buy from the owner"

Owner will sell one-half perpetual royalty on lands located in active territory, between two drilling wells. Twenty acres or more price $2.50 per acre. Terms if desired. Address "Owner," P. O. Box 1036, Fort Worth, Texas.

BIG CREEK oil field 25-acre lease for sale. Only close-in lease on market. Near drillings. Address M. H. Rogers, 1204 West Drew Ave., Houston, Tex.



WE CAN DELIVER several large blocks of acreage on drilling contracts; also several blocks for nominal cash consideration; all favorably located in Kansas with excellent possibilities for oil. Box A-520, The Oil and Gas Journal, Tulsa, Okla.

DOME DEVELOPMENT by use shallow test rigs at small expense draws claws from wildcatting, reducing the costs of prospecting to sound business basis. Method endorsed by highest authorities. Now operating. Desire business men to investigate with view of investing. James W. Rich, Oil Operator, 401-2 Bankers Mortgage Bldg., Houston, Tex.

FOR LEASE, 205-acre farm, oil and gas land on Beaver Creek, 5 miles west of Glasgow and less than 1 mile of railroad station. Farm being north of the Emery Noose Pool and joining the Taylor-Bishop farm, where the best wells are coming in. Price $25 per acre. David Samson, Box 401, Glasgow, Ky.

ATTENTION

I own property ninety-five feet from a producing well owned by the Vick Oil Company, just brought in, located in Hallett, Oklahoma, Section 4, Township 20, Range 7. Adjacent Jennings Field. I desire communication with men financially able to sink oil well on a percentage basis. Address L. B. Proctor, 511 Deere Bldg., Dallas, Texas.

FOR SALE—3,200 acres in Owensboro (Kentucky) Field; approved form lease; straight ⅛ royalty, 25 cent rental; three producing sands. Write or wire T. C. Morgan, Room 1305, 27 William Street, New York City, N. Y.

TO LEASE—640 acres, oil, gas, coal land, $1 per acre. J. W. Rollinson, 711 W. Grand, Oklahoma City, Okla.

110-ACRE LEASE for sale. Price for quick action, $10 per acre. Address Box 300, Duncan, Okla.

LEASES—PRODUCTION

J. F. MARION COMPANY
Magnolia Building
Dallas, Texas
Buys and Sells
Texas Royalties
"Ask Us First"

FOR SALE—One-half royalty in 20 acres, Section 30, Township 3n, Range 2e, Garvin County. Address A. L. Spalding, P. O. Box 701, Davis, Okla.

OIL PROMOTER, needing cash, will sell one-sixth interest in wildcat near Glasgow, Mont.; 10,000 acres on structure blocked solid. Splendid report and map by Mutual. About to be drilled. Under contract you will receive share in royalties averaging 4 per cent on 5,000 acres of top acreage. For quick deal will take $2,000. Should appeal to a real oil man. H. H. Waldron, Froid, Mont.

FOR SALE—5- and 10-year State leases, Eddy County, New Mexico, in line with present development. Priced right for quick sales. Also some proven and semiproven acreage. Address P. O. Box 21, Artesia, New Mexico.

AT BIG CREEK oil field, southeast side of dome, I have financed one drilling; want to interest parties to finance another drilling on my 10 acres adjoining. Will personally superintend operations. James W. Rich, Oil Operator, 401-2 Bankers Mortgage Bldg., Houston, Texas.

OIL AND GAS LEASES
On Marathon Fold

18,000 acres, University permits, dated October 1, 1924, joining University permits of Sun Oil Co. and Gulf Production Co. Transcontinental now drilling and three more wells to start. Price reasonable.

20,000 acres 10-year leases, Crockett County; large and small blocks adjoining best companies.

5,000 acres, 10-year leases; close to drilling wells; Reagan County.

3,200 acres University permits, Reagan County; close to Big Lake Oil Co., and Texon Oil & Land Co. producing wells. Want drilling contract.

3,000 acres 10-year lease. Upton County; near drilling well and joining leading company holdings. Prices and maps on request.

C. W. WEBSTER
17th Floor W. T. Waggoner Bldg.
Fort Worth, Texas
Reference: R. G. Dun & Co.

METCALFE COUNTY, KENTUCKY, OIL LEASE

50 acres adjoining pumping wells, drilling depth 325 feet; 46 gravity oil. Terms attractive to parties who will drill. A. W. Richards, Edmonton, Ky.

OIL LEASE for sale on structure in the principal districts of the new Colorado oil fields. Central Oil Co., Security Bldg., St. Louis, Mo.

FOR SALE—EQUIPMENT

FOR SALE—One galvanized iron building 68x28 feet, strong wooden frame, large ventilators, plenty of windows, used as main building in gasoline plant. Would make good barn. Can be torn down and moved in sections. Six miles west of Chelsea and six miles north of Foyil. Warner-Caldwell Oil Co., Nowata, Okla.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

FOR SALE — Three Bessemer gas engines, 25 h. p., first-class condition. Straight clutch. Priced to sell. Ready to load. Standard Pipe & Supply Co., Box 509. Phone 870. Marietta. Ohio.

FOR SALE—National drilling rig and tools in good condition, located at Severy, Kans. Apply to Attorney Carl Ackerman, Sedan, Kans.

35 H. P. SUPERIOR Gas Engine, Reid 24 ft. Band Power, both new, never been set up. Wyoming. Bargain. J. P. James. Equitable Bldg., Denver, Colo.

FOR SALE—Complete standard string tools from 15½ in. down to 6⅝ in. Address J. G. Hunt, 1217 Johnstone Ave., Bartlesville. Okla.

PIPE
All Sizes, Rethreaded, Coupled,
Ready for Use; Immediate Delivery
Absolutely Guaranteed
D. WOLFF & SONS
2213-23 So. Fourth St. St. Louis Mo.

FOR SALE
20 MILES of 6-inch line pipe and 20 miles of 3-inch line pipe, with good threads and couplings. This pipe has been used for oil and is in A-1 condition. For more particulars write to the Ohio Iron & Supply Co., Lima, Ohio.

THE ANNUAL REVIEW
The 1924 Annual Review of the Petroleum Industry will be published January 29. It will contain statistics, analyses, charts, maps, and information covering every activity of the producing, refining, marketing, and exporting branches of the industry.
The issue will be used for reference throughout 1925. If your advertisement is in this section, it will be working for you all through 1925.
Mail your classified advertisement now, instructing us to insert it in all January issues, including the Annual Review. It will help you.

LINE PIPE
For immediate shipment, we offer the following first-class used line pipe:

10 miles	2 inch
12 miles	3 inch
13 miles	4 inch
15 miles	4 inch (new)
12 miles	6 inch
4 miles	8 inch
4 miles	10 inch

Also in posttion to furnish various sizes of one-run casing.

PLAIN END PIPE FOR GAS LINES
50 miles Odee plain end pipe, 3 in. to 6 in. in diameter, in double joints of 35 to 40 ft.; guaranteed in first-class condition. Our prices will enable you to effect a saving of about 50 per cent and cut your installation cost in half, by reason of the double jo.nts.
JOS. GREENSPON'S SONS IRON & STEEL CO.
Department O St. Louis, Mo.

BESSEMER Gas Engines, 15- to 165-h.p.; other makes 300-h.p. Oil and gas and steam engines, compressors, generators; complete gasoline plants. R. W. Russell, St. Marys, W. Va.

FOR SALE—Three sets 5-inch Ideal Rig Irons at bargain. The Western Iron & Foundry Co., Wichita, Kansas.

FOR SALE
Two 32-h.p. Pattin Brother gas engines, complete with magneto ignition; can be seen running close to Tulsa; $700 each.
One 7-12x13x10 cross compound Worthington expander with Laidlaw valve. New condition, cost $3,550, f.o.b. factory, will take $1,500.
Two 60-h.p. Bessemer gas engines, $350 each.
Two 70-h.p. Bessemer gas engines, $350 each.
SOUTHLAND GASOLINE CO.
Box 1027 Telephone 9227
Tulsa, Okla.

FOR SALE—EQUIPMENT

FOR SALE—At Yale, Tanks, Boilers, Stills, Loading Rack and Land at junk prices. Write P. O. Box 747, Yale, Okla.

FOR SALE — Drilling machine and tools complete. "No. 2 National" in perfect condition. Tools also in first-class condition. Ready to drill well. Location, Mingo Junction, Ohio, near railroad. Standard Pipe & Supply Co., Box 509, Phone 870, Marietta, Ohio.

MACHINERY
Milling machine, No. 4 Cincinnati Universal, used D. B. G., all feeds, all universal attachments. A real bargain. Elliott & Stephens Machinery Co., St. Louis, Mo.

FOR SALE—REFINERIES

FOR SALE — Good small refinery in El Dorado, Kans., priced low for quick sale. A. F. Williams, Box 28, El Dorado, Kans.

2,000-BARREL Refinery at Jennings, Okla., to be wrecked and sold all or any part. C. T. Benner, Box 301, Jennings, Okla.. Phone 31 and 142.

EQUIPMENT WANTED

WANTED—2 to 6-inch pipe machine, must be good and priced right. State condition, age, price and location in first letter. Consumers Pipe & Supply Co., Tulsa, Okla.

MACHINE WORK

RIDLEY MACHINE WORKS—Repairing and building of all kinds of machinery; patents perfected; welding and gear cutting; automobile parts made and repaired. Jefferson and Southwest Blvd., Phone Harrison 5924, Kansas City, Mo.

PAINTS

3,000 GALLONS Blue Sublimed Lead paint made on the following specification: 52 per cent Blue Sublimed Lead, 48 per cent Pure Boiled Linseed Oil. Good for priming or repainting on wood or metal—sample on request. Will sell any or all at bargain. Write W. H. Hoover, 4917 Main St., Kansas City, Mo.

TANK TABLES

TANK TABLE COMPUTATIONS
Have your tank table computed by Tank Gauging Engineer. Tables guaranteed. $2.50 to $5 per tank. White cloth prints, 75 cents to $1.25 each; blue prints, 25 cents to 75 cents each. Mail strappings and instructions to G. E. Smith, 1612 W. Huisache, San Antonio, Tex.

HELP WANTED

WANTED — Representative for Mid-Continent Field; must be experienced. Reply stating past and present positions, salary expected and full details in first letter. Reply, Rope, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN to call on producers, drilling contractors, refiners and natural gasoline manufacturers. We offer a high class profitable line. Territory North Texas, southern Oklahoma, Louisiana, Arkansas, etc. Would consider placing as side line. Strictly commission. Reply giving reference and experience. Box A-534, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

GENERAL CONSTRUCTION foreman, familiar with all classes of concrete foundation work and machinery installation; steel, brick and wood construction; general pipe work, pump stations and gasoline plant construction. I will demonstrate my ability with any reliable company before taking up the matter of salary I shall receive. Box A-536, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION MAN and Driller wants employment with reliable company. Has had charge of large development. Box A-550, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

TAX ACCOUNTANT—Accountant experienced in ad valorem tax appraisals and levies, wishes position with oil company. References given. Address Box 602, El Dorado, Kans.

SINGLE MAN—Age 39, wants position with oil scout or lease man for some reliable oil company. I know practically every Creek and Seminole Indian in the two tribes and I have been dealing with them for the last nine years. Address J. D. Adams, P. O. Box 560, Tulsa, Okla.

WANTED

WANTED — Producing royalties. Leases offsetting drilling wildcats. Blocks acreage for tests. Box 14, Fort Collins, Colo.

BROKERS to handle Eastern New Mexico leases. Excellent geology. Also Archer, Vernon, Olney and public utility offerings. W. A. Smith, Waggoner Bldg., Wichita Falls, Texas.

WANTED — Information regarding zinc, lead, antimony, bauxite, gold and silver deposits, and oil structures in Oklahoma and Texas. Box A-463, The Oil and Gas Journal, Tulsa, Okla.

WANTED to buy 55,000 bbls. of Low Gravity Crude Oil. State gravity, location and price of oil. Address Box "X", The Oil and Gas Journal, Tulsa, Okla.

WANTED—Producing royalties. Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

WANTED—One or more associates to help me finance drilling several shallow and deep test wells in semi-wildcat fields. Have leases and permits on 288,000 acres. Some patented land balance Government lands. Situated Texas, Utah, California, Oklahoma and Kansas. Some big companies willing to drill on overriding royalty willing, to let them have play; prefer to have closed corporation and test out several choice locations and if we hit to then sell well and some acreage. Big operator write me. Box A-539, The Oil and Gas Journal, Tulsa, Okla.

BUSINESS OPPORTUNITY

RESPONSIBLE DRILLERS — Acreage proposition for drilling contracts. Oil information. Farms and ranches. F. J. Shindler, Deer Trail, Colo.

STOCK SELLING

Stock-selling campaigns planned and executed by an expert; every detail handled quickly, economically and effectively; established reputation.
WILLIAM R. THURSTON
33 West 42nd Street
New York City, N. Y.

THE SMALL SUM that it costs to insert an advertisement in the Classified Section of The Oil and Gas Journal enables you to place your desires in the minds of men who are always interested in a good proposition.

CORE DRILL your structure with diamond drills and reduce the hazard of wildcatting. Let us help your geologist correlate structure before you put cable tools at work. The cost is relatively small and the possible saving enormous. On well located tracts we will accept acreage in lieu of profits. Drilling Corporation of America, George H. St. Clair, General Manager, 205 Cosden Bldg., Tulsa, Okla. Phone 3-9031.

ACREAGE FOR SALE
Industrial site and oil prospect near Houston, Texas. Fronting on ship channel. J. A. Stephens, owner, Box 789, Shreveport, La.

BUSINESS OPPORTUNITY

WILL RAISE from $10,000 and up capital for any legitimate company. Write Agent, 61 Pulaski, Buffalo, N. Y.

ORCHARDS AND FARM LANDS

EIGHTY ACRES, well improved, irrigater Colfax County, New Mexico; clear, water rights paid; trade for something closer here. Owner, Rees, 4020 E. 27th, Kansas City, Mo.

FARM INVESTMENTS
We have four high grade, well improved and well located farms for sale at investment prices. Write H. W. Crowe, Box 112, Columbia, Mo.

BUSINESS SERVICE

CAREFULLY COMPILED summary of oil prospecting and development in the San Juan Basin to date, mailed for $1. Township maps showing permit and leaseholders for $1. Gip Smith, Aztec, New Mexico.

AUDITING

AUDITING Income Tax returns, balance sheets and auditing a specialty. Your work solicited. Reference Muskogee books.
H. E. NEWTON
619 East Okmulgee
Phone 2793-J Muskogee, Okla.

INCORPORATIONS

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Orange St., Wilmington, Del.

MULTIGRAPHING

"REAL MULTIGRAPHING"
Every job is the job with us. Direct Mail Advertising Specialists—Multigraphing, Mimeographing, Mailing Lists. Complete Mail Campaigns from you to your prospect's desk.
THE PUBLIC LETTER SHOP
Pan-American Bldg. Tulsa, Okla.

LETTERHEADS—PRINTING

SAY IT WITH PRINTING. Basic Bond Letterheads $3.50, envelopes $2.50. Get our quantity prices. Creative Advertising Department. Safety Printing Co., Box 276. Rock Island, Ill.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township plats, gauge books, run tickets, time books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

CONSUMERS' LEDGERS
We are prepared to furnish from stock standard forms of Gas Meter Consumers Ledgers. Sample forms and quotations on request. First class material and workmanship.
DERRICK PUBLISHING CO.
Oil City, Pa.

FOR SALE—DOGS

REGISTERED Bull Pups—Bulldog Park, 501 Rockwood, Dallas, Texas.

FOR SALE MAPS

FREE
Geological Oil Map of the new San Juan Basin fields of New Mexico. Remarkable development now under way—2,500-bbl. wells from 700 feet; oil is 60 gravity Baume; several new fields opening up; new refineries; pipe lines; roads; splendid opportunities for operators and investors in leases and royalties. Write today for accurate maps and report, sent free to Journal readers.
OIL EXCHANGE & BOARD OF TRADE
Farmington, New Mexico

MAIL LISTS

MAILING LISTS
Oil and Other Stockholders
in over 1,000 companies; 1260 Texon Oil & Land Co., $10. 3455 Ralph Dudley Oil Co., $25 and 600 other oil companies. Write for detailed price list.
A. F. Williams, Mgr.
166 W. Adams St.
Est. 1880 Chicago, Ill.

ENGINEERS & CONTRACTORS
IN NATURAL GAS AND OIL

65 Miles of 12-Inch Pipe and Never a Leak in 18 Months!

Extract from a letter—dated June 13, 1924, —from the president of a natural gas company in the South:—

"We put this pipe line in operation and turned in gas on November 29, 1922. From that time to the present day, we have had no interruption whatever in the operation of this 12-inch pipe line. And during said operation, which has been continuous from the day gas was first turned in to the present time, we have not been able to find a single leak from any cause. In fact, it is the best 12-inch pipe line I have seen during my long experience in handling gas under high pressure. Our line walkers are disgusted at not being able to find a single leak."

This is a Hope-built line—of course.

HOPE SERVICE
Engineering counsel, design, construction and contracting—in pipe lines for oil and gas, oil pumping stations, gas compressing and boosting plants, gasoline recovery systems, city and inter-city gas mains.
UNIT RESPONSIBILITY

H-1A

ENGINEERS CONTRACTORS HOPE Engineering & Supply COMPANY DESIGNERS MANUFACTURERS
MT. VERNON, OHIO, U. S. A.

N. LOUISIANA-ARKANSAS

(Continued from Page 48)

tivity in this district has never come up to expectations.

The Alabama Petroleum Co. is setting liner to test 17 feet of broken sand at 2,518 feet in No. A-3 Pardee, Section 24-21-10, resetting liner to test at 2,526 feet in No. 1 Ramsey, Section 19-21-9, and has 2,000 feet of oil in the hole and arranging to pump No. 1 Smith, Section 29-21-10.

The Fortuna Oil Co. is drilling at 1,350 feet in No. 1 Crichton, Section 19-21-9; rigging up to drill No. 1 W. Cox in Section 15-21-10, and arranging to drill in at 2,470 feet in No. 4 S. J. Merritt, Section 14-21-10. The Humble Oil & Refining Co. has four rigs running on the Bodcau Lumber Co. lease in Sections 13, 24 and 28-21-10, three on the Davis in Sections 13 and 24-21-10, and rigging up to drill No. 1 Gray, Section 26-21-10.

The Louisiana Oil Refining Co. is down 50 feet in No. 3 Lindsay, Section 22-21-10; Moffatt & Murphy, drilling at 1,810 feet in No. 2 Coyle, Section 28-21-10, and Ohio Oil Co. has four rigs running on the Bodcau Lumber Co. lease in Sections 13 ond 27-21-10, and rigging up to drill No. 1 Harris, Section 16-21-10.

The Oil Field Gas Co, is drilling at 1,760 feet in No. B-4 Hope Estate, Section 24-21-10; at 2,310 feet in No. B-5, Section 13-21-10, and at 600 feet in No. B-6, same section; Palmer Corp. set 6-inch casing at 3,460 feet in No. 1 Miller, Section 29-21-10, and drilling at 780 feet in No. 1 Tillman, Section 28-21-10, and S. S. Raymond and others are arranging to abandon No. 1 Coyle in Section 21-21-10, at 3,372 feet.

The Tidal Oil Co. is bailing casing at 2,468 feet in No. 1 Gleason, Section 28-21-10.

Bienville Parish

The Roxana Petroleum Corp. is closed down at 1,990 feet in No. 1 Bryan, Section 30-17-8, between Gibsland and Bienville.

In the north end of the parish, in the Springhill district, the Arkansas Fuel Oil Co. set 6-inch casing at 2,660 feet in No. 1 Frazier, Section 27-23-11; Belchic & Laskey set 6-inch at 2,600 feet in No. 6 Pine Woods Lumber Co. and 10-inch at 460 feet in No. 1 Martin, Section 34-23-10, and Butler-McMurray rigging up to drill No. 1 Wheeler in Section 35-23-11.

The Texas Co. is drilling plug in 6-inch at 2,560 feet in No. 1 F. M. Tinsley, Section 35-23-10, and J. K. Wadley is drilling at 2,000 feet in No. 1 Porter Woodley, Section 31-23-9.

The Bethany Oil & Gas Co. is drilling at 2,500 feet in No. 2 T. R. Wiley, Section 6-22-9, and T. W. Haehnlen, trustee, at 2,575 feet in No. 1 Roberts, Section 9-23-10.

Bossier Parish

The Atlantic Oil Producing Co. is drilling at 2,535 feet in No. 2 Bodcau, Section 24-23-12, in the north end of the parish.

In the Elm Grove district, Arkansas Natural Gas Co. tested 500,000 feet of gas at 1,820 and 1,900 feet in No. A-4 Van Hoose, Section 31-16-11, and waiting orders. Palmer Corp. is rigging up to drill No. B-7 Hodges, Section 30-16-11, and Standard Oil Co. tested with no show of gas at 1,927 feet in No. 4 J. T. McDade, Section 31-16-11.

Skannell and others set 6-inch casing at 2,392 feet in No. 1 Roscoe, Section 14-17-12, 8 miles east and a little south of Shreveport.

Caddo Parish

In the Waskom district, in the south end of the parish, Glassell & Myers tested 10,000,000 feet of gas at 922 feet in No. 1 Florsheim, Section 9-17-16, killed the well and arranging to drill deeper.

Haynes Brothers are rigging up to drill on the Louisiana Live Stock & Plant Co. lease in Section 5-9-16, in the west end of the Mooringsport district.

In the Caddo Lake territory, Gulf Refining Co. is drilling in shale at 2,100 feet in No. 219 Ferry Lake, Section 22-20-16, and The Texas Co. at 3,150 feet in No. 1 Federal Jeems Bayou, Section 15-20-16.

Claiborne Parish

The Claiborne-Lincoln Syndicate is closed down at 1,725 feet in No. 3 Fields, Section 22-19-5, 5 miles north of Arcadia.

The El Dorado Chief Oil Co. tested salt water at 2,270 feet in No. 1 McElwee, Section 13-22-7, and will drill deeper.

J. P. Evans and others are drilling in shale and boulders at 1,730 feet in No. 1 Taylor, Section 5-9-5, 10 miles southeast of Homer.

De Soto Parish

The Greyhound Syndicate is closed down at 2,800 feet in No. 1 Pollock, Section 36-11-14, 14 miles southeast of Logansport.

L. V. Ulrey and others set 10-inch casing at 440 feet in No. 1 Robinson, Section 22-11-12, 3 miles north of Pelican.

Morehouse Parish

The Oil Fields Exploration Co. set 6-inch casing at 2,230 feet in No. 1 Pratt, Section 35-20-5, and at 925 feet in No. 1 R. Watson, Section 13-20-4.

Ouachita Parish

Morrison and others set 6-inch casing at 900 feet in No. 1 Glazier, Section 37-19-4; Montgomery and others are rigging up to drill No. 1 McHenry, Section 12-19-4, and Ouachita Natural Gas Co. is drilling in gas sand at 2,135 feet in No. 3 Trezevant, Section 4-20-4.

The Palmer Corp. set 6-inch casing at 2,155 feet in No. 2 Morgan, Section 21-19-5; Southern Carbon Co., drilling at 2,110 feet in No. 21 fee, Section 7-19-5; at 2,150 feet in No. 43, Section 31-19-5; Standard Carbon Co. has derrick up for No. 1 Swartz in Section 6-19-5, and J. P. White and others set 10-inch casing at 210 feet in No. 1 Jones, Section 6-16-5.

Union Parish

The Jones-Walker Oil Co. is drilling at 1,950 feet in No. 1 Feazel, Section 6-19-2e, and Simms Oil Co. is trying to kill a fresh water flow at 390 feet in No. 1 James, Section 16-22-3w.

Winn Parish

Galloway & Arrendale are drilling at 1,400 feet in No. 1 McCarty, Section 5-12-1w, 10 miles northeast of Winnfield.

Arkansas

Columbia County

The Arkansas Fuel Oil Co. has made a location for No. 1 W. E. Hardy in Section 1-19-22.

The Magnolia Petroleum Co. is drilling in rock at 2,525 feet in No. 2 Watson, Section 36-15-20.

Phillips and others are drilling at 2,725 feet in No. 1 Davis, Section 14-18-21, a deep test 7 miles south of Magnolia.

Hempstead County

The Grassy Lake Oil Association set 12½-inch casing at 100 feet in No. 1 Hempstead County Gun Club, Section 27-12-27, 16 miles west of Hope, and J. G. Wooten is closed down at 200 feet in No. 1 Clarke, Section 22-11-24, 7 miles north of Hope.

Little River County

Grote and others are drilling at 3,040 feet in No. 1 Allen, Section 2-13-31.

Miller County

Dr. Nigh and others are building derrick for No. 1 Thomas in Section 12-20-28.

Nevada County

The Humble Oil & Refining Co. has made a location for No. 1 C. A. Fincher in Section 6-15-23; Ouachita Valley Oil Co. set 6⅝-inch casing at 2,010 feet in No. 1 Phillips, Section 30-14-20; Smitherman & McDonald rigging up to drill No. 6 McKinney in Section 10-14-21, and arranging to pump No. 3 Drake, in Section 10-14-21, and Zing and others drilling at 1,160 feet in No. 1 Graves, Section 22-10-23.

TEAPOT CASE MARCH 9.

CHEYENNE, Wyo., Dec. 27.—Judge T. Blake Kennedy granted a continuance until March 9 of the trial of the Government's suit in equity for annulment of the Mammoth Oil Co.'s lease on the Teapot Dome naval oil reserve.

WALWORTH

What they say about the Bostong Wrench—

"From every angle the Bostong wrench is the best I ever had. It will take more grief in making up tight joints, and works better in loosening them."

F. SEIDER,
Cleveland.

The Bostong
Saves time in handling pipe

Here's a tong that will do everything any other chain wrench can do, and a good deal more.

The Bostong is *reversible.* There's a two-way action in the jaw so that you can turn a pipe in either direction with the same grip. (A great help in cramped corners.)

It always works *right side up.* In overhead work the chain takes care of itself and never has to be wired in.

Bostongs come in five sizes, for everything from 1/2-inch to 12-inch pipe. They're quick, sure, powerful and there's tough stuff in them.

WALWORTH MANUFACTURING CO., Boston, Mass.
Plants at Boston and Kewanee, Ill.
Buffalo Cleveland Glasgow Kewanee, Ill. London New York Philadelphia Portland, Ore. San Francisco Seattle Youngstown
WALWORTH INTERNATIONAL CO., NEW YORK, Foreign Representative

23,000 different items
Valves, Fittings, Tools for Steam, Water, Gas, Oil and Air

Henry Ford Says:

"If there is a machine that can effect a given saving in any operation you are paying a tax equal to the amount of that saving all the while you delay installing that machine."

The Savings Effected by

"Tex" plunger Working Barrels

are often enormous. One man estimates that "Tex" Working Barrels will save him nearly $36,000 next year. He recently analyzed his pulling expense and he found that out of 485 rod jobs

75.25% were due to Worn Out Cups.
9.07% were due to Parted Rods.
11.55% were due to Balls and Seats.
4.13% were due to Paraffine.

Regarding the first mentioned item, "worn out cups," it cannot exist where the "Tex" is used because the "Tex" *has no cups.*

There are OTHER advantages that are fully covered in our literature. Write for it. Install a "Tex" in your WORST well and we know you will be thankful to us for the suggestion.

Bradford Motor Works
Bradford, Pa.
Branch Factory & Warehouse, Tulsa, Okla.

Without obligating us in any way, please send complete information regarding the "Tex" Working Barrel.

Name .....

Firm .....

Address .....

.....

INITIAL PRODUCTION GAINS IN DECEMBER

(Continued from Page 36)

ing wells at the close of November, an increase of three in rigs and a decrease in drilling wells of 11, or a net decrease of eight in new work.

CENTRAL OHIO
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	4	.....	1	3	7	8	15
Medina	6	.....	3	3	2	5	7
Lorain	4	.....	1	3	..	4	4
Wayne	13	74	..	9	3	13	16
Richland	..	.....	..	..	..	2	2
Hocking	1	.....	..	1	..	1	1
Vinton	..	.....	..	..	..	2	2
Holmes	10	80	..	7	11	28	39
Coshocton	1	.....	..	1	1	..	1
Jackson	5	.....	..	5	5	2	7
Athens	6	.....	2	4	8	6	14
Meigs	1	.....	..	1	1	1	2
Summitt	1	.....	..	1	1	..	1
Cuyahoga	1	.....	1	..	1	1	2
Lawrence	..	.....	..	..	..	1	1
Total Dec.	53	154	8	38	40	74	114
Total Nov.	74	318	14	49	25	91	116
Difference	21	164	6	11	15	17	2

Regardless of the heavy storms and inclement weather conditions during a part of December, there were a total of 53 wells completed in the fields of central Ohio, of which 7 were oil wells, with a flush production of 154 bbls., 8 dry holes and 38 gas wells. Compared with the November figures this shows a decrease of 21 in completed wells, four less oil wells, 164 bbls. less production, six less dry and 11 less gas wells.

In new work under way at the close of December, there were 40 rigs up and building and 74 drilling wells, against 25 rigs and 91 drilling wells at the close of November a net decrease of but two in new work, which is something out of the ordinary for this season.

The feature strike for the month was the completion of a well by the Logan Gas Co. ond the Scott V. Mast farm, in Hardy Township, Holmes County, with a flush of 50 bbls. In the drilling for gas several wells on the outer edges of development have increased the drillable gas territory to quite a large extent.

ILLINOIS
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	7	153	1	0	0	8	8
Crawford	1	0	1	0	0	2	2
Lawrence	1	0	1	0	0	2	2
Marion	1	0	1	0	0	0	0
Wabash	4	75	3	0	2	5	7
Fayette	1	0	1	0	0	0	0
Douglass	0	0	0	0	0	1	1
Union	0	0	0	0	0	1	1
Jasper	0	0	0	0	0	1	1
Total Dec.	15	228	8	0	2	20	22
Total Nov.	14	595	6	2	2	23	25
Difference	1	367	2	2	0	3	3

The new production for December made a decided drop when compared with the November figures of 367 bbls., while one more well was completed in December, there being a total of 15 new wells. There were two more dry holes in December and no gas wells.

In new work under way there were at the close of December, 2 rigs up and 20 wells drilling, against 2 rigs and 23 drilling wells, a loss of but 3 in new work.

INDIANA
Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	1	10	0	0	0	0	0
Jay	3	37	0	0	0	4	4
Adams	2	32	0	0	0	2	2
Delaware	1	3	0	0	0	1	1
Gibson	3	14	2	0	0	1	1
Sullivan	2	8	0	1	0	1	1
Harrison	1	10	0	0	0	0	0
Hendricks	0	0	0	0	0	1	1
Shelby	1	0	0	1	0	0	0
Hamilton	1	0	0	1	0	0	0
Randolph	1	0	1	0	1	0	1
Total Dec.	16	114	3	2	1	10	11
Total Nov.	16	282	3	0	1	17	18
Difference	0	168	0	3	0	7	7

Operators of the Indiana Field have almost closed down for the winter months, and work will not be resumed until early spring, according to reports from those who have been doing the work during the season just closed. The December figures show 16 completed wells, 114 bbls. new production, 3 dry holes and the same number of gas wells, which is an offset for the November figures in completed wells and dry holes, while new production decreased 168 bbls., and there was an increase of three in gas wells. The new gas wells were found in Hamilton and Shelby Counties, and these two wells and a 10-bbl. well completed in Harrison County, are the features of the month.

The close of December shows one rig up and 16 wells drilling, against one rig and 17 drilling wells at the close of November, a loss of 7 in new work.

KENTUCKY-TENNESSEE
Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wayne	5	25	1	..	1	12	13
Estill	1	5	..	..	..	2	2
Morgan	1	8	..	..	..	1	1
Wolfe	..	..	..	..	..	4	4
Lee Owsley	12	163	1	1	..	21	22
Lawrence Johnson	14	530	..	2	..	38	38
Johnson Magoffin	7	75	..	..	2	30	32
Floyd	..	..	..	..	..	8	8
Elliott	..	..	..	..	..	2	2
Clay	1	..	1	..	..	1	1
Rowan	..	..	..	..	..	2	2
Breathitt	..	..	..	..	..	1	1
Jackson	..	..	..	..	..	1	1
Madison	..	..	..	..	..	1	1
Flemming	..	..	..	..	..	1	1
Bell	..	..	..	..	..	1	1
Boyd	..	..	..	..	..	1	1
Martin	..	..	..	..	..	1	1
Laurel	..	..	..	..	..	1	1
Harlan	..	..	..	..	..	1	1
Warren	11	117	3	1	3	32	36
Allen	13	409	6	..	1	28	29
Barren	20	122	..	3	5	35	40
Owensboro District	7	81	3	..	..	13	16
Cumberland	3	..	3	..	..	11	11
Russell	..	..	..	..	..	3	3
Logan	1	85	..	..	2	..	2
Simpson	..	..	..	..	..	..	..
Metcalf	..	..	..	..	..	3	3
Kentucky	96	1,620	18	7	15	255	270
Tennessee	6	25	4	..	7	10	17
Mississippi	..	..	..	..	6	20	26
Alabama	1	..	1	..	1	9	10
Georgia	..	..	..	..	1	4	5
Total Dec.	102	1,645	23	7	30	298	328
Total Nov.	168	3,475	54	8	16	245	261
Difference	66	1,830	31	1	14	53	67

The Kentucky-Tennessee and Southern Fields, did not make a very promising showing during December, due to a large extent to the inclement weather conditions and the low price of crude. Just at the close of the month operations are closed down as a majority of the operators wended their way to their own fireside, but early in the year if the price is right wildcat development will be rushed, especially in the eastern division of Kentucky.

The month's completions totaled but 102 for the combined fields, of which there were 96 in Kentucky, with 1,620 bbls. production, 18 dry holes and 7 gas wells. Of the completions 51 were in the western division, with a flush of 814 bbls., there being 15 dry holes and 4 gas wells. In the eastern division there were 45 completions, 39 of which were producers, with an initial output of 806 barrels, 3 gas wells and 3 dry holes.

Tennessee had 5 completions, of which 4 were dry, and one god for 25 bbls., while Alabama's one well was dry.

In new work under way at the close of December in the entire area there were 30 rigs up and 298 wells drilling, a total of 328. When compared with the November figures this shows an increase of 14 in rigs up and 53 in drilling wells, or a net increase over November of 67 in new work, which indicates what the new year should bring about.

BOYD OIL CO. WILL CHANGE ITS NAME

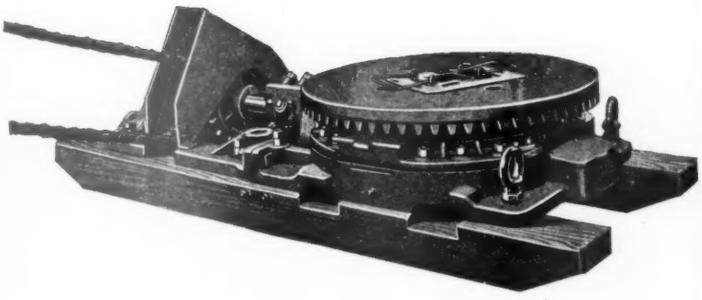
MEXIA, Tex., Dec. 27.—The Boyd Oil Co. is to be changed to the Humphreys-Boyd Co. Official action to this effect will be taken at the January meeting of stockholders of the company. The new name will bear the title of both sides of the Humphreys household. Mrs. Humphreys being a Boyd. The company is capitalized for $3.125,000 divided into 125,000 shares. Since the discovery in the new area the stock has risen from $18 to $65.

OPENS WORTHAM WAREHOUSE

Wortham, Texas, has been selected as the latest distributing center for Williamsport Wire Rope. A new warehouse has opened at this point as a part of Williamsport policy to establish new distributing centers as rapidly as conditions warrant. This branch will be under the general supervision of H. B. Gruber, manager of oil country sales, whose offices and main distributing warehouse are located at Tulsa, Okla. The Wortham branch is under the direct supervision of E. A. MacKenzie.

A Great Big Step Forward

The Titusville No. 6 Rotary



Realizing the demands for better equipment for deep drilling, we have built into the No. 6 these added features:

Higher carbon in steel castings throughout; holddown brackets extended almost entirely around the table, completely enclosed the raceway to keep out mud; an extra long keyway on the pinion shaft so that the sprocket can be accurately lined with the Drawworks sprocket; new conveniences built in for keeping the Rotary clean and well oiled.

The Lightning type drive bushings stay put when spudding, and ride the stem when coming out of the hole.

Combine this Rotary with a No. 6 Four Speed Acme Drawworks and a Titusville Twin Drilling Engine and you have an outfit that is several strides ahead.

The TITUSVILLE IRON WORKS Co.
TITUSVILLE ~ PENNA.

TITUSVILLE EQUIPMENT
Oil Country Boilers
Steam Drilling Engines
Tico Gas Engines
Flapper Valve Pumps
Pumping Powers
Twin Drilling Engines
Rotary Machines Rotary Drawworks
Swivels Slush Pumps
Crown Blocks
Traveling Blocks
Rotary Drilling Specialties

TITUSVILLE OIL COUNTRY MACHINERY
RUGGED ~ ENDURING

AFFILIATED COMPANIES FOR DISTRIBUTION
For Mid-Continent, Eastern, Western and Coastal Fields:
The Continental Supply Co.
For California:
The Republic Supply Company of California
For Export:
The Continental Well Supply Company,
No. 2 Rector Street,
N. Y. City

New Club
Grows and Grows

Graham & Company Latest to Qualify—Here's How:

Devil's Steel Hand

The Success-in-One-Run-Fishing Club is composed of men who have experienced the grand and glorious feeling of getting their "fish" on the first run of the fishing tool. The official tools are, of course, the DEVIL'S STEEL HAND and the DEVIL'S PITCHFORK. If by chance you are eligible for membership, send us the details so that you may be officially "initiated."

About a month ago, while drilling their Curry No. 10, Graham & Co. of Stephens County, Texas, froze their 6⅝" and had to pull it. They pulled the pipe in two.

When they tried to jar the lower joints loose they broke a three-slip trip spear off at the top of the slip seats. Next they went in and bumped the spear down, caught the casing with another spear and got the pipe, leaving the old spear in the hole.

They fished for *4 days* with horn sockets, hollow reamers, spuds, other tools and swearing. Then George Kiffinger decided to try the DEVIL'S STEEL HAND.

They fished the piece of spear out on the *first run*, and thus became members of the constantly growing Success-in-One-Run Fishing Club."

Shall we send you prices and other details? Immediate shipments.

Devil's Pitchfork

BROWN WELDING & MACHINE CO.
Breckenridge, Texas
Tulsa Rental & Sales Branch: 424 East Second St., Tulsa

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Colombia Held Back In Oil Development By Unfavorable Laws

HOUSTON, Tex., Dec. 27.—The following letter concerning conditions and developments in Colombia is from a friend of The Oil and Gas Journal. The writer is a pioneer operator, well known in the old eastern fields, as well as in California and Mexico, and has been in and out of Colombia several times within the past five years.

His observations are interesting at this time and show the patience that must be exercised by American oil men desiring to secure an opportunity to develop the petroleum resources of the South American republics. The letter follows:

"Aside from the operations of the Tropical Oil Co. very little work has been done. The fact that Venezuela, Ecuador, Peru and Bolivia have more favorable petroleum laws and encourage oil development in every way has resulted in many of the companies leaving Colombia for the present and operating in these other countries. Practically all work and leasing of more prospective territory in Colombia is confined to the Tropical Oil Co., Standard of California, Standard Oil Co., Transcontinental and Union Oil companies. Jenks, representing English capital, is drilling the second well near Port of Colombia and preparing to test near Monteria, about 100 miles up the Sinn Valley. The Standard of California, after drilling two or three failures, is drilling between Barranquilla and Cartagena.

"Geological reports of much of the coast section have been favorable and even practical oil men think, or have thought, well of that section, but so far the fluid has not been found in commercial quantities. Either it is spotted or lies very deep, if there at all.

Small Well In

"Benedum & Trees (Transcontinental Oil Co.) have either a small well or shut down before a complete test was made at their well at Guatachi, about 250 miles above the Tropical Oil Co.'s property at Barranca Bernepa, near the Magdalena River. They are drilling or preparing to drill another about 10 miles down the river.

"The Tropical Oil Co. has a really magnificent property, about 10 miles in length, fully tested, and several miles in width. Two very important developments recently immensely increase the value of its holdings. It is running between 15 and 20 strings of tools constantly and already has more potential production than can be handled by the 10 inch line, which is starting from Cartagena, about 250 miles distant, air line.

"After more than five years effort Captain J. W. Flanigan, of the Andean Oil Corp., has succeeded in securing a concession to lay a pipe line up the Magdalena River Valley. The concession, or license from the government, grants 250 miles farther should it be desirable later.

"The time required to secure these concessions or contracts is almost inconceivable to those acquainted with the oil business and the necessity of transportation. But that is Colombia's method of business and it is their country. These delays, however, have driven many companies to other countries and it is too late for many to return, even if more encouragement is offered, for they are located mostly in Venezuela, with years of work to capacity. This means the diverting of many millions of dollars, and it is doubtful if Colombia will 'catch up' in this generation.

"Venezuela is taking full advantage of the opportunity and with $35,000,000 or $40,000,000 in its treasury, which will be multiplied within the next few years, is bound to be the dominant country of the Caribbean Coast.

Anti-American Sentiment

"It is generally admitted that the payment of the $25,000,000 to Colombia by the United States was a failure so far as fostering good will and commercial relations. For Colombia it was like picking up that sum in the middle of the street and has given them an exaggerated idea of how 'easy' are the people of the United States. So the idea of 'something for nothing' still generally prevails, making it difficult to transact business in anything like an equitable manner. There is quite a strong anti-American feeling, principally among the labor unions and the cheaper grade of politicians, which makes it extremely difficult for the more enlightened officials to encourage equitable transactions, even though in many cases they are of supreme importance and benefit to Colombia.

"The enlightened and broad-minded citizens realize that foreign capital can get along much better without Colombia than Colombia can without foreign financing, but politics rules there as is often the case in the United States, setting sound business principles aside. The advantage in our country is that private resources and sound financial judgment can overcome a lot of bad politics, which is not the case generally in South America.

"Colombia will produce an immense amount of oil—some time. Probably as much or more than Venezuela, but the peak of production will come many years later. There are signs of awakening, but the lost opportunity will never be fully recovered.

"After quite a number of unsuccessful attempts to find oil in commercial quantities in Panama and although the formation seems favorable in certain places, the companies operating there are almost completely discouraged and most of them are preparing to abandon Panama for the present at least. The western part of Ecquador also, it is thought, will have to await the successful solving of the shale oil theory before much more work will be done there to find production."

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended December 20 totaled 598,000 bbls., a daily average of 85,429 bbls., against 409,000 bbls., a daily average of 58,429 bbls. for the week ended December 13.

	Week ended Dec. 20
At Atlantic Coast ports—	
Boston	74,000
New York	363,000
Philadelphia	80,000
Others	81,000
Total	598,000
Daily average	85,429

Imports of crude and refined oils at the principal ports for the week ended December 20 totaled 1,070,000 bbls., a daily average of 152,857 bbls., compared with 1,799,000 bbls., a daily average of 257,000 bbls., for the week ended December 13.

	Week ended Dec. 20
At Atlantic Coast ports—	
New York	211,000
Philadelphia	70,000
Others	220,000
Total	503,000
Daily average	71,857
At Gulf Coast ports—	
Galveston district	177,000
New Orleans and Baton Rouge	300,000
Fort Arthur and Sabine district	80,000
Tampa	40,000
Total	567,000
Daily average	81,000
At all United States ports—	
Total	1,070,000
Daily average	152,857

INFORMATION ABOUT DIESELS

A new catalog of elaborate proportions and unusual attractiveness has just been issued by the Busch-Sulzer Brothers-Diesel Engine Co., of St. Louis, Mo. Numerous full-page illustrations and scores of pictures showing the Diesel engines manufactured by this concern in all kinds of installations, occupy much of the 100-page book. There is also much other useful information such as Diesel pumping costs, operating costs, etc. Diagrams and charts of all descriptions supplement the photographs and text.

U. S. GOVERNMENT OIL RESERVES; PROPOSED LEASING LEGISLATION

By L. M. Fanning

Further legislation dealing with the leasing of Government withdrawn land promised as a result of the agitation against the leases of Naval Reserves No. 1 in California and No. 3 in Wyoming and in connection with a new conservation policy projected by President Coolidge, is of interest as having a bearing upon the petroleum development on large areas in the United States and upon the question of the "open door" in international oil. It will be recalled that during the past few years there has been considerable agitating both in and out of Congress regarding the importance of an adequate supply of crude petroleum in this country. When Congress enacted the general leasing law in 1920 it contained the following provision: "That citizens of another country, the laws, customs or reglations of which deny similar or like privileges to citizens or corporations in this country, shall not by stock ownership, stock holdings or stock control, own any interest in any lease acquired under the provisions of this act."

In view of the broad significance of the whole question of oil conservation a summary of developments up to the time of writing is herewith presented. It might be well, first, to point out that as regards the leasing act of February 25, 1920, Congress acted with due deliberation. Leasing bills had been before the national legislative bodies for years prior to the final enactment of the measure. Hearings were held on frequent occasions and voluminous testimony pro and con is on file regarding the Taft and Wilson withdrawals, the naval reserves and every phase of the question of Petroleum conservation.

Congress then passed the measure and the amendment of June 4, 1920, with its eyes open. The act was not a hastily considered one, hurriedly approved. It had the benefit of numerous previous bills, and was essentially a relief measure in the interest of legitimate claimants in withdrawn areas. Its provision that the Secretary of the Navy might lease actual producing wells within the naval oil reserves was designed for protection of the reserves from drainage by wells in adjacent areas.

Naval Reserves

The subsequent amendment of June 4, 1920, giving the Secretary of the Navy the power to operate naval reserves, was designed as an additional protection against a drawing on the reserves by outside producing operations. When enacted, this legislation was not considered a departure from a policy of conservation, but rather the application of a policy of practical conservation. Subsequent developments, however, led to the view that the act and amendment of 1920, coupled with the executive order of May 31, 1921, which transferred the administration of the naval reserves from the Secretary of the Navy to the Secretary of the Interior represented complete discard of the Roosevelt conservation policy, which bore fruit in the Taft withdrawal orders. The reaction, therefore, has been agitation to return to the Roosevelt conservation policy.

The practical reflection of this in Washington, not considering the civil suits for the recovery of Naval Reserves Nos. 1 and 3, was the appointment by President Coolidge of an oil conservation commission. The commission was designated in March of this year, with Dr. George Otis Smith, director of the United States Geological Survey, as chairman, and Rear Admiral Hilary P. Jones, president of the General Board of the United States Navy, and R. D. Bush, of the Bureau of Mineralogy of the State of California, the other members. This was a first step in working out a new policy for the administration of the naval oil reserves. Subsequent statements by Doctor Smith strongly support a policy of conserving the oil underground where ever possible, but put the matter squarely up to Congress.

In a preliminary report to the President, made by Doctor Smith and joined in by Admiral Jones, the commission in effect condenms the policy of expending oil in place of money appropriated by Congress to provide oil storage. As its function in part will be to recommend what should be done with the two reserves in litigation in case of their return to the Government, the commission's definite, final recommendation will in some measure depend upon the outcome of the suits.

Up To Congress

However, the preliminary report puts it up to Congress to pass legislation making necessary appropriation for the construction of tankage. This it has never been willing to do. Instead, the policy has been to pay for storage with oil produced for reserve. The commission clearly recommends the appropriation of money for the operation and protection of the reserves and for new reserves, if necessary, as well as for the purchase of oil.

"The naval oil reserves were created with the declared purpose that the Government retain ownership of as large tracts of oil lands as could then be found, so as to provide for any future needs of the Navy," the commission stated. "The original intent, declared in a time of plenty, was to store oil where nature placed it against the time when oil in quantities then needed could not be had through the ordinary trade channels. The prime purpose in retaining the oil contained in the naval reserves being safety, the administration of these reserves should be animated by principles of saving publicly-owned oil for these future needs, rather than of saving public funds from present expenditure. The choice between oil and dollars has to be made."

Meanwhile, Secretary of the Navy Curtis D. Wilbur, has laid down as a naval policy respecting the reserves a ruling preventing the issuance of such leases as were made by the Secretary of the Interior, acting under the executive decree of May 31, 1921, transferirng the administration of the naval oil reserves from the secretary of the Navy to the Secretary of the Interior. He stated that no leases or contracts would be made by the Navy Department without the personal approval of the Secretary, and that he would take personal charge of all naval matters pertaining to oil leases. Furthermore, no leases would be made until "expressly authorized by Congress," unless it appears that such leases are absolutely essential to prevent the draining of oil in the naval reservations. In effect, this nullifies the working of the executive decree, although Secretary Wilbur stated he would be guided by the judgment in the present litigation unless Congress enacts special legislation for the control of such reserves.

Old Mining Laws

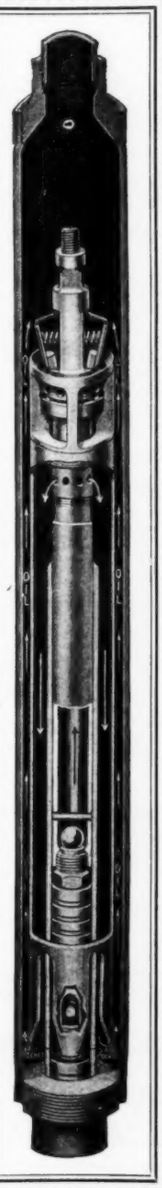
To sketch the history of the naval oil reserves, it is necessary to go back to the old minings laws enacted when petroleum was first discovered in the United States and having no relation to the newly discovered mineral. The first general mining law of the United States, covering the public domain was the "lode" law, enacted in 1866, which provided that mining claims "upon veins or lodes of quartz or other rock in place of bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits—may be located."

In 1870 the placer law covering minerals not in veins or lodes was enacted, providing for the location of placer claims "upon like circumstances and conditions and upon similar proceedings to those for lode claims."

The mining laws were amended in certain particulars in 1872, but there was no further change in them for 25 years. The petroleum placer law, approved February 11, 1897, provided that lands chiefly valuable for petroleum might be located "under the provisions of the laws

(Continued on Page 120)

Bell Peerless
(Sand Fighter)
Plunger Pump



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PLUNGER protected from SAND

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Oil Securities Irregular During Week

Belief That Conditions Will Warrant General Advance. Thoroughly Liquidated Without Efficient Gain to Encourage Short Selling

By N. O. Fanning
Room 543, No. 30 Church St., New York

NEW YORK, Dec. 27.—Oil securities were irregular during the past week, pursuing about the same course they have followed for more than a month. Instances of strength developed at times which were offset later by corresponding losses.

The financial district is still of the belief that conditions warrant a general advance in oil securities within the next month. The oil group, they point out, has been thoroughly liquidated and there have not been enough substantial advance to encourage short selling, so that technically the oil groups are stronger practically than any other.

One bright spot during the week was persistent buying of Standard Oil of New Jersey common which advanced that stock to 40, the highest at which it sold since February last. Still, the stock afterward sold off nearly to 38.

Pan American Petroleum Issues

The Pan American Petroleum & Transport issues were unusually active, and sold up to new high prices for the year, the common to 65 and the B stock to 64¾. These issues sold off somewhat, however, on the announcement that 100,000 shares of Class B common stock had been sold to a group of bankers at a price not made public. No stock was offered to shareholders. At the offices of the company it could not be learned the purpose of the sale of the stock.

There are now outstanding, including the new issue, 1,739,414 shares of B stock and 1,001,557 shares of common, making a total stock capitalization of 2,740,971 shares of $50 par value each.

Sinclair Stocks Weak

Sinclair Consolidated Oil Corp. common stock was heavy, selling down close to 16. The preferred stock sold down to 77.

Barnsdall Earnings

Barnsdall Corp. and subsidiaries will close present year's operations with net earnings of about $1,250,000 after all deduction for taxes, interest, depletion and depreciation, against $181,848 in 1923, President Robert Law, Jr., states in a letter to stockholders.

"Your company has reduced its funded debt from $12,555,000 in 1921," he says, "to $6,408,500 in 1924, or about $6,250,000 during the most strenuous time in the oil industry and, during this period, has applied large sums to necessary new investments."

Standard Oil Dividends

Total cash dividends declared in 1924 by the various companies of the Standard Oil group, aggregating $150,388,555, established a new high record, despite the fact that excessive production of crude oil during the greater part of the year kept prices down below the average level of 1923. Last year's payments to stockholders of those companies that comprised the old Standard Oil Trust before its dissolution in 1912 were approximately $12,000,000 in excess of the distribution in 1922.

The Vacuum Oil Co., which increased its dividend disbursement by nearly $2,500,000, the International Petroleum Co., the Anglo-American Oil Co., the Chesebrough Manufacturing Co. and the Solar Refining Co. contributed to the increased volume of dividend payments last year.

Cash dividend payments by the Standard Oil group for the final quarter of 1924 aggregated $40,000,286, according to Carl H. Pforzheimer & Co., specialists in Standard Oil securities. This amount is slightly under the second quarter because of the omission of dividends by the Atlantic Refining Co. on its common stock and the Standard Oil Co. of Kansas, as well as the reduction of rates by several Eastern pipe line companies.

However, the distribution for the current quarter is the largest final quarter payment, with the exception of 1922, when four Eastern pipe lines made extra cash disbursements aggregating $11,000,000.

The total annual disbursements of the group since the dissolution are as follows:

	Totals
1924	$150,388,555
1923	138,423,295
1922	129,039,865
1921	115,294,292
1920	115,776,793
1919	105,901,477
1918	103,480,916
1917	99,957,923
1916	98,627,875
1915	62,401,204
1914	62,692,884
1913	107,795,361
1912	51,686,634

Tables for other companies are said to show proportionately encouraging increases.

Low Priced Oils More Active

Some of the low priced oil stocks showed renewed activity on the New York Stock Exchange. Panhandle Producing & Refining common sold up to 4, and the preferred rose to 42½, although there was not much activity. Superior Oil was active around 5. Transcontinental Oil was heavy, dropping to 3⅞. Independent Oil & Gas advanced to 12¼. Middle States Oil was fairly active around 1¼.

Corporation Dividend

Since the merger of the Ohio Fuel Supply Co., the Union Natural Gas Co. and the Manufacturers Light & Heat Co., there has been a good deal of speculation as to what would be the dividend basis of the new company, the Ohio Fuel Corp. It was announced last week it would pay a quarterly dividend of 2 per cent, payable January 15 to stock of record December 31. Before the merger the Union Natural Gas Co. had been parying 1 per cent and the Ohio Fuel Supply Co. and Manufacturers Light & Heat Co., 8 per cent.

New England Fuel Oil

Directors of New England Fuel Oil Co. have decided to pay a dividend of $10, the formal action to be taken early in the new year. Magnolia Petroleum Co. operates this company's producing fields in Mexico.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stocks—	Par	§Dividend Rate	Clos. Dec.29	Quotations Dec.22	1924 High	1924 Low	1923 High	1923 Low
1.	American Republics	..	..	48	44	48	25	..	..
2.	Associated Oil	25	6	32½	31⅝	34⅝	27⅝	29¾	29½
3.	Atlantic Ref. com.	100	..	95	90¼	140½	78½	160	98¾
4.	Barnsdall "A"	25	..	22¼	19⅝	22¼	14	35	9⅞
5.	California Pet. com.	25	7	23	22¾	29	19⅞	28½	17½
6.	Cosden & Co., com.	..	..	26½	26	40½	22⅝	62¼	23¾
7.	General Am. Tank	..	†3	50⅝	51	53	35½	71⅝	40
8.	General Asphalt	100	..	60¼	56⅝	61¼	31⅝	64	23
9.	General Petroleum	25	8	42⅝	42	45	38⅝	..	..
10.	Houston Oil	100	..	79	75¾	82½	61	78	40¾
11.	Independent Oil & Gas	10	..	12⅞	10½	13½	5⅝	11¼	3⅜
12.	Indian Refining	10	..	6¼	*5	7	3⅝	8½	4
13.	Invincible Oil	50	..	15⅝	14⅜	16⅞	11⅜	19¼	7½
14.	Maracaibo	..	..	28⅝	27⅞	37½	25⅝	28¼	16
15.	Marland	..	..	38½	37¼	42	29	59⅝	18½
16.	Mexican Seaboard	..	..	20⅜	21¼	25⅝	14½	19⅜	5⅜
17.	National Supply	50	6	60½	*59	72½	54	68	54
18.	Pacific Oil	50	†2	53⅛	52	58⅛	45	52⅜	31⅛
19.	Pan American com.	20	16	64⅜	63⅝	65	44¼	93½	53
20.	Phillips Petroleum	..	†2	36⅞	36	42¼	28½	69⅝	19⅜
21.	Producers & Refiners	50	..	28⅞	*29	43½	22⅜	58¼	17⅛
22.	Pure Oil com.	25	6	29½	28⅞	30¼	20	32	16¼
23.	Royal Dutch, N. Y. sh.	13.40	2.62	51⅝	48⅞	59½	40⅜	55⅛	40½
24.	Shell Transport	10	92½	42	*39	42	33	41¾	29⅞
25.	Shell Union com.	..	†1	22	21¼	22	15⅝	19¼	12⅝
26.	Simms Petroleum	10	..	23½	18⅛	24	10⅝	16⅝	6½
27.	Sinclair Cons. com.	..	..	17	16⅝	27½	16	39⅝	16
28.	Skelly Oil	25	..	23⅜	21⅝	29	17⅛	35	12⅛
29.	Standard of California	25	8	62⅝	61⅝	68½	55½	64½	47⅛
30.	Standard of N. J. com.	25	4	39⅞	39¼	42¼	33	44¼	30⅞
31.	Standard of N. J. pfd.	100	7	117½	117	118⅝	115⅝	118¼	114⅝
32.	Superior Oil	6	..	5	5	8⅛	2⅝	6⅜	2
33.	The Texas Co.	25	12	43	43⅛	45⅝	37⅜	52⅞	34⅝
34.	Texas Pac. Coal & Oil	10	..	11	10⅝	15¼	8¼	24⅜	5½
35.	Tide Water Oil	100	4	130	130¼	151	116¼	144	94
36.	Transcontinental	..	..	3⅞	4	6¼	3⅜	14½	1¼
37.	Union Oil of Cal.	25	7.2	37	36½	39	35⅛	..	..
38.	Union Tank com.	100	6	123	*122	132⅞	94	114	106
39.	White Eagle Oil & Ref.	..	2¼	27⅝	27	29⅝	23⅛	30⅝	20⅛
	Standard Oil Stocks								
40.	Anglo-American Oil	£1	25	18⅝	18	18⅝	14⅜	19⅜	13⅛
41.	Borne Scrymser	100	12	*233	*239	264	150	153	110
42.	Buckeye Pipe Line	50	14	61¼	60½	85½	51	94	57½
43.	Chesebrough Mfg. Co.	25	14	49⅜	49	52½	29¼	340	205
44.	Crescent Pipe Line	25	..	12⅜	*12	20	11¼	25	15
45.	Cumberland P. L.	100	10	134	135	148	109	117	80
46.	Eureka Pipe Line	100	8	85	86	105	74	117¼	87
47.	Galena Signal com.	100	4	55⅝	56	69⅜	52⅛	78	55
48.	Humble Oil & Ref.	25	4.8	42	41⅝	43⅝	36	41	28¼
49.	Illinois Pipe Line	100	12	125	125	161	123	171	115
50.	Imperial Oil Ltd.	25	12	117	113½	119	99	123	92
51.	Indiana Pipe Line	50	8	76	72½	100	66	103	81
52.	International Pet. Co.	100	x50	23½	22⅞	24⅝	16⅞	24⅝	13¼
53.	Magnolia Pet. Co.	100	4.5	137	133	162	124	166	123
54.	National Transit	12.50	16	22½	*21	25⅞	20⅝	29	19½
55.	New York Transit	100	10	66	69½	97	54½	138	70
56.	Northern Pipe Line	100	6	81½	82½	107½	72	111	96
57.	Ohio Oil Co.	25	8	82½	83	79⅝	63	86⅝	48⅝
58.	Penn-Mex. Fuel	25	..	32½	*36	45⅝	27	45	10½
59.	Prairie Oil & Gas	100	8	208	209	269	193	272	152
60.	Prairie Pipe Line	100	8	106½	107½	111	100	117	93
61.	Solar Refining Co.	100	15	*200	205	230	170	212	161
62.	South Penn Oil	100	..	129	129	176	117	196	100
63.	South West Pa. Line	100	4	*72	77	89	68	89	66
64.	Southern Pipe Line	100	8	90½	89½	100	80½	116	87
65.	Standard of Indiana	25	10	62½	61¼	69⅝	54¼	69⅞	48½
66.	Standard of Kansas	25	..	35½	36	50½	32½	56¼	36½
67.	Standard of Kentucky	25	16	119⅝	119⅝	121⅝	101	109⅝	76
68.	Standard of Nebraska	100	20	247	253½	262	198	280	186
69.	Standard of New York	25	5.6	44½	43⅝	48	37⅜	49⅝	35½
70.	Standard of Ohio com.	100	10	355	350	377½	277	320	270
71.	Swan & Finch com.	25	..	23½	24	28	20	..	..
72.	Vacuum Oil	25	†5.75	81½	80	83¾	56½	55⅞	40
73.	Washington Oil	10	..	*29½	*29	29	25	28	20¼
	Miscellaneous Stocks								
74.	Cities Service bks. sh.	..	†21	18	17½	19	13¼	18½	12¾
75.	Gulf Oil Corp. of Pa.	25	6	66	65	67⅜	56	68¼	45⅝
76.	Mutual Oil	5	10	12	11⅞	14	9⅝	..	..

*Bid, no sales. †In dollars. §The figures in this column are kept up to date as far as possible, but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Dec. 29	51.73	Nov. 24	50.23	Oct. 20	46.99
Dec. 22	50.76	Nov. 17	50.07	Oct. 11	45.24
Dec. 15	50.36	Nov. 10	51.86	Oct. 6	46.20
Dec. 8	49.49	Nov. 3	48.16	Sept. 27	46.70
Dec. 1	49.59	Oct. 27	47.58	Sept. 22	47.02

CALIFORNIA REFINED MARKET REMAINS DULL

LOS ANGELES, Calif., Dec. 27.—The Pacific Coast market continues dull. The recent increase in crude production due to completions in the Dominguez and Athens-Rosecrans Fields has had a decided dampening influence. The only commodity which showed any particular strength during the current week is natural gasoline. The absorption grades remain strong at 11½ to 12½ cents, while some high gravity compression gasoline which was being sold at 10½ cents on a contract expiring a week ago was renewed at 11½ cents.

The service station gasoline situation in and around Los Angeles is gradually being straightened out. Another one of the smaller refineries shut down this last week, thus cutting off the source of supply for considerable "bootleg" trade. The established marketing companies are getting more and more of the business in this territory.

Fuel oil is steady but not strong. In the industrial districts of California prices are varying from $1 to $1.20, while at tidewater the price of $1.40 per bbl. is being maintained but the demand consists simply of the regular bunker trade. Otherwise, the Pacific Coast oil market is featureless.

JOHN D., JR., DONATES OIL STOCK TO MUSEUM

NEW YORK, Dec. 29.—John D. Rockefeller, Jr., has given stock of the Standard Oil Co. of California, valued at approximately $1,008,000 to the Metropolitan museum of art. The only other gift Rockefeller is said to have made specially to art was $500,000 to the Fogg museum of Harvard. He has given $1,000,000 to the American Museum of Natural History and $3,000,000 to the New York Public Library.

The gift of 16,000 shares of Standard Oil Co. of California, listed at about $63 a share in the present market—was made after intensive study of the activities and accomplishments of the museum.

RULING ON DEPLETION METHOD

WASHINGTON, D. C., Dec. 27.—The Board of Tax Appeals in the case of the Savoy Oil Co. of New York, decided not to disturb Revenue Bureau methods of calculating capital amount used as a basis for determining the depletion rate on oil land leases, in the absence of error on the part of the revenue commissioner.

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in regard to Steel Band and Calf Wheels and Band Wheel Tugs has probably been different

But ours should help yours

Steel Band Wheel

Made in standard diameters, faced for standard width belting. Steel Angle Arms, securely riveted to circles of Steel Cants and bolted to a Shaft Hub, eliminates the need of band wheel flanges. Furnished with metal Tug Pulley when desired.

WE WERE three years perfecting the items listed. We studied requirements and undertook to fill them, not in the manner easiest or least expensive for us, but in the manner most satisfactory to the consumer.

Therefore, if your experience has not been satisfactory—try the results of ours. We have paid the bill and offer to share the benefit with you. Try us.

The Parkersburg reputation is behind these Wheels, reputation for the best—in design, construction, delivery, freedom from experiment and desire to sell Quality and Service only.

This reputation has made Parkersburg Products outstanding over a period of 27 years.

The Steel Wheels are no exception.

They stand out in a class by themselves.

See them in the fields—try them on your rigs.

Ask us for the details of our experience
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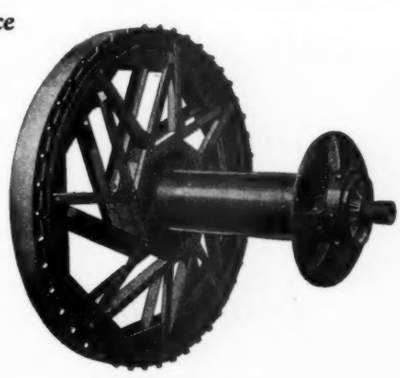
Steel Bull Wheel

Positive traction given by "V"-Grooved Tug Rim. Brake Cants securely clamped and bolted between two rings of steel Cants—easily replaced when worn. Arms attached to Tug and Brake Wheels for quick assembly in the field.



Steel Calf Wheel

Heavy bracing angles extend from each arm to each tug rim bolt. Tug rim is held firm and braced solid. It can't be pulled loose or out of line. Patented construction of the Shaft Hub insures a true-running, well-balanced wheel. Quick to assemble, long lasting.

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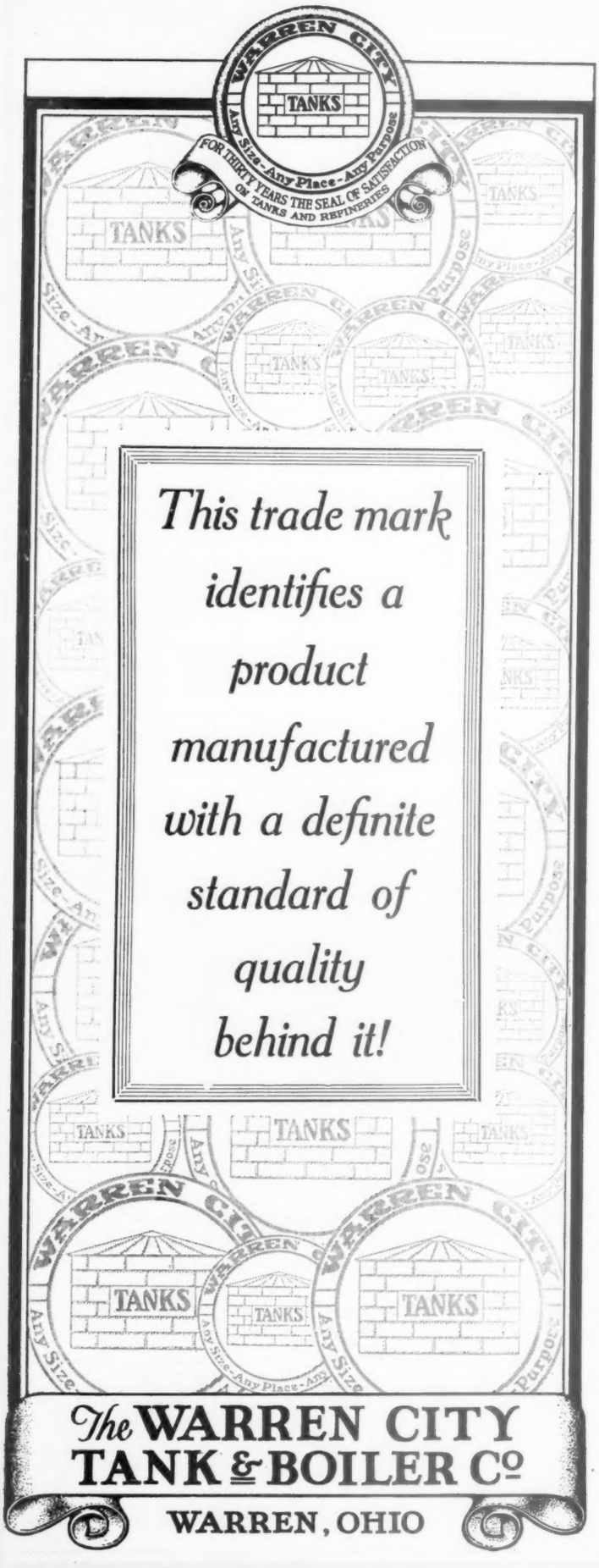
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This trade mark identifies a product manufactured with a definite standard of quality behind it!
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WARREN, OHIO

SUMMARY OF CALIFORNIA OIL FIELD OPERATIONS FOR NOVEMBER, 1924

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for November amounted to 17,767,034 barrels, an average of 592,234 barrels per day. This is a decrease of 10,881 barrels per day under October production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 2,453,927 barrels. The total stocks at the end of the month were 123,945,219 barrels. The total stock increase for 1924, up to November 30, 1924, was 7,227,777 barrels. Comparative figures as of December 31, 1923, October 31, 1924 and November 30, 1924, are shown in detail in this report.

There were 62 wells completed during November with an initial daily production of 33,130 barrels, compared with 82 wells completed during October with an initial production of 21,534 barrels.

PRODUCTION

(Figures for production and stocks are in barrels of 42 gallons.)

District—	Barrels Per Month	Daily Average Nov. 1924	Daily Average Oct. 1924	Daily Average Nov. 1923
Kern River	543,397	18,113	17,787	16,0
McKittrick	174,052	5,802	5,685	5,9
Midway-Sunset	3,271,117	109,037	109,619	73,3
Elk Hills	1,162,521	38,417	39,150	21,3
Lost Hills-Belridge	145,162	4,839	4,955	3,4
Coalinga	745,760	24,859	24,653	17,1
Wheeler Ridge	25,511	850	1,014	5
Watsonville	1,725	57	56	
Santa Maria	234,881	7,829	7,359	6,8
Summerland	4,365	146	144	1
Ventura-Newhall	337,951	11,265	11,567	9,7
Los Angeles-Salt Lake	67,194	2,240	2,154	3,3
Whittier	63,393	2,113	2,173	1,7
Fullerton	349,360	11,645	11,682	10,4
Coyote	622,309	20,744	20,179	1,8
Santa Fe Springs	1,592,924	53,097	54,909	212,3
Montebello	507,193	16,906	16,930	10,7
Richfield	343,713	11,457	11,541	15,3
Huntington Beach	1,217,725	40,591	40,690	73,3
Long Beach	3,853,934	128,464	136,418	241,8
Torrance	1,367,586	45,586	49,447	20,3
Dominguez	1,013,006	33,767	32,576	1,8
Rosecrans	129,255	4,309	2,302	
Inglewood	3,000	100	126	
Total	17,767,034	592,234	603,115	746,8
October	18,696,559	603,115		
Decrease	929,525	10,881		

STOCKS

	Nov. 30 1924	Oct. 31 1924	Nov. Stock Increases	Dec. 31 1923
Heavy crude, heavier than 20 degrees A. P. I. including all grades of fuel	55,828,377	54,601,865	1,226,512	52,393,3
Refinable crude, 20 degrees A.P.I. and lighter	40,946,221	40,423,812	517,309	36,886,9
Gasoline	10,630,599	10,283,944	346,655	7,696,8
Naphtha distillates	10,458,267	10,760,302	*302,035	13,114,4
All other stocks	6,081,755	5,416,269	665,486	6,641,8
Total all stocks	123,945,219	121,491,292	2,453,927	116,727,4

*Decrease.

DEVELOPMENT

District—	New Rigs Up	Active Drilling	Completed	Daily Initial Output	Active Producing	Abandoned Drillers	Wells Produce
Kern River	1	4	1	15	2,175	..	..
McKittrick	1	6	..	..	288	..	..
Midway-Sunset	21	70	13	4,698	2,926	2	..
Elk Hills	3	11	4	2,540	250	1	..
Lost Hills-Belridge	..	..	..	..	316	..	..
Coalinga	..	7	2	15	1,050	..	..
Wheeler Ridge	..	6	..	..	13	..	..
Watsonville	..	..	..	..	6	..	..
Santa Maria	1	6	..	..	301	1	..
Summerland	..	..	..	..	135	..	..
Ventura-Newhall	1	37	1	755	562	..	..
Los Angeles-Salt Lake	..	..	..	..	419	..	41
Whittier	..	9	..	..	178	1	..
Fullerton	..	1	..	..	389	..	..
Coyote	..	1	..	..	231	..	..
Santa Fe Springs	2	5	1	518	348	2	2
Montebello	..	8	2	380	156	..	..
Richfield	2	8	2	663	178	..	..
Huntington Beach	2	16	5	2,887	296	6	1
Long Beach	..	25	5	1,060	514	8	6
Torrance	7	41	14	2,268	482	..	..
Dominguez	8	30	4	8,683	29	..	..
Rosecrans	6	38	8	8,648	15	..	..
Inglewood	2	5	..	..	1	1	..
Miscellaneous drilling	6	100	..	..	..	8	..
November	63	434	62	33,130	11,258	30	50
October	87	456	84	21,534	11,282	24	13
Decrease	24	22	22	†11,596	24	†6	†37
Average for year 1923	111	759	82	114,690	8,928	24	
Average for year 1922	115	605	67	43,700	9,410	17	
Average for year 1921	90	536	57	15,631	9,425	14	
Average for year 1920	77	403	49	14,125	9,299	13	
Average for year 1919	58	340	47	9,572	8,774	18	

†Increase

AUTOMOBILE OUTPUT FOR ELEVEN MONTHS

WASHINGTON, D. C., Dec. 27.—An analysis of the production of passenger automobiles and motor trucks for 1922 and 1923 and 11 months of 1924 was made public by the Department of Commerce, based on reports from 204 manufacturers.

In 1922 the output was 2,339,840 passenger cars and 226,273 trucks; in 1923, 3,637,217 cars and 376,444 trucks, and in the 11 months of 1924 ending with November, 3,009,099 cars and 333,601 trucks.

There was a marked reduction in the number of passenger cars manufactured in October and November, 1924, compared with the same months in the previous year. In October, 1923, the number was 335,041 and in October, 1924, 257,915; in November, 1923, the number was 234,939, and in November, 1924, 195,279.

TASMANIA TO USE SHALE OIL

The Government of Tasmania, Australia, has called together in conference the people owning mining areas in the shale-bearing part of the country, to see whether they cannot cooperate to bring about the development of the formations. The Government geologist of Tasmania says the difficulty about the shale was not that of obtaining oil from it but of securing the cooperation of varied interests. As a result of the conference a committee is to meet in Hobart to try to arange for the pooling of the various interests concerned. If efforts are successful, systematic exploration and development will follow.

NEW YORK GAS WELL

DUNKIRK, N. Y., Dec. 27.—The largest gas well ever struck in the Sheridan fields came in Thursday with a daily flow of more than 1,000,000 feet.

Natural Gas in 1923

NATURAL GAS PRODUCED AND CONSUMED IN THE UNITED STATES IN 1923

State—	Produced and Delivered to Consumers (Includ'g Deliveries in Other States) Quantity (Millions of Cu. Ft.	Est. Val. at Wells Total (Thous. of Dollars)	Est. Val. at Wells Aver. per M Cubic Ft. (Cents)	Consumed (Incldg. Receipts from Other States) Quantity (Millions of Cu. Ft.)	Value Pts. of Consump. Total (Thous. of Dollars)	Value Pts. of Consump. Aver. per M Cubic Ft. (Cents)	Interstate Receipts & Deliveries Quantity Piped Into State (Millions of Cu. Ft.)	Interstate Receipts & Deliveries Quantity Piped Out of State (Millions of Cu. Ft.
Arkansas	24,215	990	4.1	33,746	4,536	13.4	9,531	.....
California	131,434	8,543	6.5	131,434	22,787	17.3	.....	.....
Illinois	4,049	587	14.5	4,049	690	17.0	.....	.....
Indiana	880	286	32.5	2,951	1,553	52.6	2,083	12
Kansas	32,072	2,707	8.4	37,637	10,829	28.8	11,627	6,062
Kentucky	11,953	1,039	8.7	21,232	5,605	26.4	9,279	.....
Louisiana	112,031	2,890	2.6	111,434	5,127	4.6	8,643	9,240
Maryland	.....	.....	.....	668	486	72.8	668	.....
Missouri	17	3	17.6	6,301	4,152	65.9	6,284	.....
Montana	1,470	59	4.0	2,417	521	21.6	947	.....
New York	6,497	1,648	25.4	16,495	9,506	57.6	10,032	34
Ohio	53,812	8,395	15.6	120,920	58,468	48.4	70,770	3,662
Oklahoma	203,082	18,277	9.0	173,788	24,631	14.2	337	29,631
Pennsylvania	112,562	25,887	23.0	138,478	54,742	39.5	38,396	12,480
South Dakota	33	3	9.1	33	17	51.5	.....	.....
Texas	74,535	3,809	5.1	83,037	13,757	16.6	17,154	†8,652
West Virginia	203,867	24,403	12.0	88,827	18,525	20.9	3,960	119,000
Wyoming	35,523	1,424	4.0	34,576	4,018	11.6	.....	947
*Other States	103	9	8.7	103	10	9.7	.....	.....
1923	1,008,135	100,959	10.0	1,008,126	239,960	23.8	189,711	†189,720
1922	762,546	84,873	11.1	762,546	221,535	29.1	179,332	179,332

*Alaska, Colorado, Iowa, Michigan, New Mexico, North Dakota and Tennessee. †Includes 9,000,000 cubic feet of gas piped from Texas to Mexico.

CONSUMPTION OF NATURAL GAS IN 1923

State—	DOMESTIC CONSUMPTION Number Consumers	Quantity (Millions of Cu. Ft.)	Val. at Pts. of Consump. Total (Thousands of Dollars)	Val. at Pts. of Consump. Average per M Cu. Ft. (Cents)	INDUSTRIAL CONSUMPTION Field (Drill'g, Pump'g and Operating Gasoline Plants Estimated Quantity (Millions of Cu. Ft.)	Field (Drill'g, Pump'g and Operating Gasoline Plants Est. Val. Pts. of Consump. (Thous. of Dols.)	Other Industrial, Including Use in Making Carbon Black Quantity (Millions of Cu. Ft.)	Other Industrial, Including Use in Making Carbon Black Val. Pts. of Consump. Total (Thous. of Dols.)	Other Industrial, Including Use in Making Carbon Black Val. Pts. of Consump. Aver. per M Cu. Ft. (Cents)	Total Industrial Quantity (Millions of Cu. Ft.)	Total Industrial Val. Pts. Consump. Total (Thous. of Dols.)	Total Industrial Val. Pts. Consump. Aver. per M Cu.Ft. (Cents)
Arkansas	38,280	5,670	2,105	37.1	18,320	749	9,756	1,682	17.2	28,076	2,431	8.7
California	511,590	16,642	12,525	75.3	86,101	5,596	28,691	4,666	16.3	114,792	10,262	8.9
*Illinois	10,500	216	134	62.0	3,833	556	.....	.....	.....	3,833	556	14.5
Indiana	36,300	1,624	936	57.6	47	15	1,280	602	47.0	1,327	617	46.5
Kansas	130,830	10,462	6,302	60.2	4,844	409	22,331	4,118	18.4	27,175	4,527	16.7
Kentucky	116,570	10,897	4,328	39.7	1,193	104	9,142	1,173	12.8	10,335	1,277	12.4
Louisiana	26,730	3,264	1,020	31.3	13,880	368	94,290	3,749	4.0	108,170	4,107	3.8
Maryland	11,290	587	443	75.5	.....	.....	81	43	53.1	81	43	53.1
Missouri	93,070	6,042	4,056	67.1	.....	.....	259	96	37.1	259	96	37.1
Montana	5,170	1,083	482	44.5	520	20	814	19	2.3	1,334	39	2.9
New York	197,540	16,009	9,300	58.1	217	55	269	151	56.1	486	206	42.4
Ohio	1,023,730	91,702	46,553	50.8	4,714	735	24,504	11,180	45.6	29,218	11,915	40.8
Oklahoma	142,700	17,496	8,436	48.2	114,948	10,345	41,344	5,850	14.1	156,292	16,195	10.4
Pennsylvania	548,440	58,968	29,614	50.2	10,027	2,304	69,483	22,824	32.8	79,510	25,128	31.6
South Dakota	380,380	33	17	51.5	.....	.....	.....	.....	.....	.....	.....	.....
Texas	177,070	13,002	8,406	64.7	51,876	2,651	18,159	2,700	14.9	70,035	5,351	7.6
West Virginia	154,060	22,806	6,884	30.2	20,252	2,424	45,769	9,217	20.1	66,021	11,641	17.6
Wyoming	9,350	1,632	734	45.0	12,279	493	20,665	2,791	13.5	32,944	3,284	10.0
†Other States	200	74	7	9.5	25	2	4	1	25.0	29	3	10.3
1923	3,233,800	278,209	142,282	51.1	343,076	26,816	386,841	70,862	18.3	729,917	97,678	13.4
1922	3,014,600	264,413	126,902	49.9	197,850	27,444	310,283	67,189	21.7	508,133	94,633	18.6

*Gas used with artificial gas. †Alaska, Colorado, Iowa, Michigan, New Mexico, North Dakota and Tennessee.

(Continued on Page 116)

A Typical Swartwout Oil Field Installation

Where positive trouble-free ventilation, without operating cost is needed, you'll see these standard Swartwout Ventilators on the job

The quick elimination of heat and dangerous fumes, and a steady supply of pure air is a vital necessity in oil field buildings, particularly in pumping stations and compressor plants.

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Let us send you a copy of our latest book on ventilation, "The Gospel of Fresh Air;" containing much helpful data. Better still, our engineers will gladly make complete recommendations covering your specific problem, if you will write us in detail regarding it.

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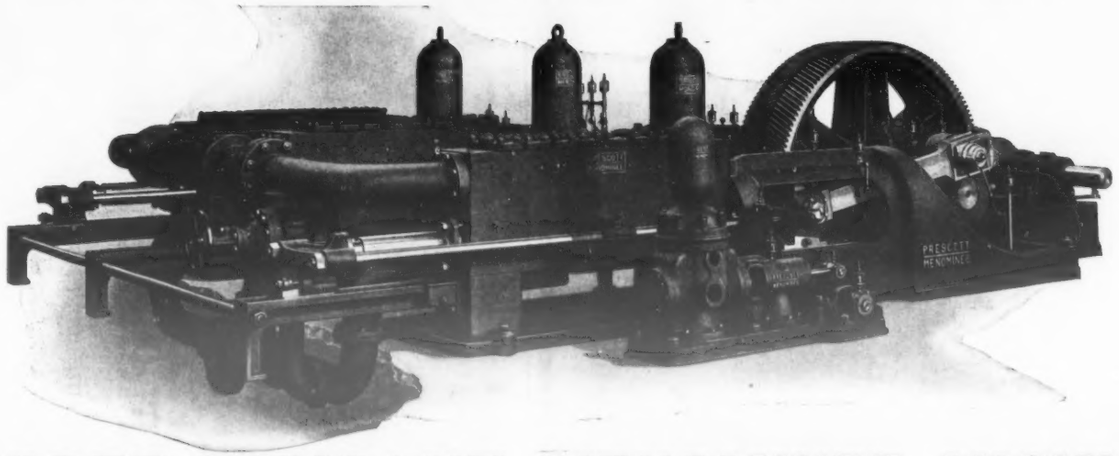

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OIL CONSERVATION AND ITS PROFITS

(Continued from Page 25)

Any questions as to the constitutionality of a reasonable national conservation law affecting the procuring of crude oil can be dismissed at this time, as the basic principle involved in the idea of conservation is rather clearly defined—and probably more generally accepted in the minds of the people than would be indicated by its statute enactments, either State or national.

It will probably develop that after the last several years of more or less disturbing "investigations" the inherent sanity of the American people will finally find expression in a "constructive relationship" between our Government and the oil industry that will not kill the spirit that has been the most potent factor in bringing in new supplies of crude oil, but that will do for the industry what the industry has known should be done—but lacked the cohesiveness to do—if indeed it would not have violated the Sherman Anti Trust Law if it had had the cohesiveness to function effectively.

And it is easily conceivable that, within the ranks of the petroleum industry, the psychological reaction that will follow the Government's taking the initiative in inviting "the outstanding producers of petroleum" to cooperate in working out a conservation program, will be more far-reaching than the actual program itself.

The President's reference to "our present leasing and royalty practices" strikes directly at one of the several things which, in the case of prolific new fields, result in overproduction—and while this has been a stumbling block for 65 years, the industry will probably get farther, with Government cooperation, than it has ever gotten without it.

The word "overproduction," while not wholly indefinite, is used in a largely undefined sense, because new, flush pools, unless they throw tens of millions of barrels of oil on the market in a relatively short time, seldom seriously affect more than their own area—hence the difficulty of enacting a national law that would be equitably operative under the extremes of, for example, the old Bradford Field and Powell. The first would be a case of encouraging production—the latter, of retarding production.

Overproduction Defined

With the present development of the industries built around the internal combustion engine, to say nothing of the marvelous growth in the use of fuel oil—and with a present-day need for about 750,000,000 bbls. of crude oil a year—we have definitely passed the point where the "settled production" from our, say, 298,000 wells, needs any conservation other than careful "nursing" by their owners.

The only wells that can possibly cause overproduction are the relatively few in the new, flush fields—and these have never amounted to 20 per cent of the total number of new wells drilled in any year. The other 80 per cent are as safe and as necessary as a plow horse on a farm.

And yet the very fact that the big wells, say an average of 2,000 each year in the prolific new fields, are so obviously the cause of overproduction, puts them in such a vulnerable position that there is urgent need that in the effort to conserve crude oil by "turning the spigot" in our new fields, we do not dangerously hamper the wildcatter who has been the "Columbus" to our new production.

The 300,000 wells that produced about 720,000,000 bbls. of oil in 1924 will produce about 580,000,000 bbls. in 1925. But the demand for crude oil in 1925 will be at least 750,000,000 bbls. or 170,000,000 bbls. more than will be produced by the wells that were producing at the close of 1924. True, we have some 400,000,000 bbls. of stored crude in pipe lines, at tank farms and at refineries—but the vital fact remains that just three things can prevent this shortage of say 170,000,000 bbls. in 1925—(1) our stored oil—(2) the "new production" from about 16,000 oil wells that will be drilled in 1925—(3) imports from Mexico, with probably a relatively small amount from South America.

New Production Insufficient

In the face of an almost constant overproduction, either here or in Mexico, the fact remains that we are absolutely dependent on our year-to-year "new production"—and that, until the recent flood from California, even this new production was insufficient.

And it is also a fact that for several years previous to 1923 we had not produced enough crude oil, within the borders of the United States, to take care of our domestic and foreign demand—and, under these conditions, the "overproduction" of 1920-1921 was the direct result of imports from Mexico.

The idea of conservation, from a "restarding" standpoint, presupposes either a temporary or an anticipatedly prolonged period of overproduction—but in the light of our experience up to the year 1923, it is barely possible that we may not be in a period of overproduction in 1930—at least so far as domestic production is concerned.

In this connection it is rather interesting to check back over the production of crude oil—and see what the producers received for it.

What Industry Got for Oil

Referring to Table 1 we find that during the "kerosene-lubricating oil" period (1859-1900)) the industry produced slightly over a billion bbls. of crude oil and received $1.02 per bbl. for it.

In the "automobile development" period (1901-1916) almost 3,000,000,000 bbls. were produced for which an average price of 78 cents was paid.

The next period of four years (1917-1920) covers our two years in the World War, the next year of wild inflation and the year when deflation began to gain momentum. In this period we produced 1,500,000,000 bbls. at an average price of $2.21.

During the last period (1921-1923) we produced over 1,750,000,000 bbls. of oil at an average price of $1.60.

It is interesting to note that in the first period (42 years) we produced oil at an average rate of 24,000,000 bbls. a year and an average price of $1.02. In the second period (16 years) we produced oil at an average rate of 182,000,000 bbls. a year and an average price of 78 cents. In the third period (four years) we produced oil at an average rate of 378,000,000 bbls. a year and an average price of $2.21. And during the fourth period (three years) we produced oil at an average rate of 587,000,000 bbls. a year and an average price of $1.60.

In all, we produced over 7,000,000,000 bbls. of crude oil at an average price of slightly over $1.31 a bbl.

If oil was worth an average price of $1.02 a bbl. over the 42 years from 1859 to 1900, when "everything was cheap," it obviously is worth more than $1.50 today when nothing but gasoline is "cheap."

What Happened to Producer

The accompanying graph shows clearly what has happened to the producer in the past six years. In 1918-19-20 the production of crude oil increased gradually while the average yearly prices were $1.97, $2.09 and $3.07, respectively. In the next three years, 1921-22-23, the production kept increasing while the average yearly price dropped to $1.73—then to $1.61 and in 1923 to about $1.50 in the face of the greatest outpouring of oil the world has ever seen. Thus in this six-year period we have two entirely abnormal prices resulting from two entirely different causes—the post-war price of $3.07 as an aftermath of the war and our dwindling stocks of crude—while the abnormally low average price in 1923 resulted from the development of the eight big fields.

As generally understood—and as was obviously in the mind of President Coolidge—we are today in a state of "overproduction." Statistically, this is true—but industrially, the situation is not so serious. Table 2 shows that in the 32 months from January 1, 1918, to October 31, 1924, we produced and imported 4,130,000,000 bbls. of crude oil—

(Continued on Page 115)

Oil Technology by Correspondence

University of Chicago Opens Course by Mail to Petroleum Workers in Field, Refineries and Distributing Branches

By Charles E. Kern

WASHINGTON, D. C., Dec. 29.—During the last year The Oil and Gas Journal frequently called attention to the growing demand for the teaching of petroleum geology, petroleum engineering and petroleum technology by correspondence. As a part of this campaign for the higher education of men working in the oil fields and elsewhere in the production, refining and distributing branches of the industry, the United States Bureau of Education sent to about 100 universities and technical schools a questionnaire to develop what is being done by these institutions in the teaching of these subjects, asking how they viewed propositions for special efforts to promote education in respect to petroleum and especially how they regarded the suggestion that such courses should be given by means of correspondence courses. All of this effort was to serve the ambitious men working in the industry with a desire to rise to more responsible positions but who could not leave their work to settle down in a university town during several years to personally attend classes and work in laboratories.

The responses to these questionnaires were varied from opinions favoring such instruction by correspondence to those that regarded residence at the university as indispensable. Now comes the great University of Chicago, with its splendid corps of educators, backed by a munificent endowment, taking the first step toward the realization of this plan by offering a correspondence course in petroleum geology. This famous university is the first in the world to take this important step. Indeed it is the first school of any kind to offer a correspondence course in petroleum geology. A great variety of subjects have been taught by correspondence to fit home students for all sorts of professional and business careers but never before has petroleum geology been included in these educational programs.

Course Explained

Recently Dr. W. C. John, assistant commissioner of education, United States Bureau of Education, called the attention of the writer to the success of the plan for home study of petroleum geology advocated by The Oil and Gas Journal and more recently a letter received from Hervey Foster Mallory, secretary of the Home Study Department of the University of Chicago, explained the scope of this newly established course and the reasons for establishing it.

This course in petroleum geology is now being conducted by F. B. Plummer, who is exceptionally qualified for the work. Mr. Plummer was graduated from Dartmouth in 1909, taught geology two years at Vassar, entered the University of Chicago for graduate study, accepted a position with the Roxana Petroleum Corp., was called to the main office of the Royal Dutch Petroleum Co. at The Hague as adviser regarding its interests in America and is at present with the Ryeade Oil Corp., directing the important work of locating oil deposits. Mr. Plummer has given this course in petroleum geology in the classrooms of the University of Chicago and will continue to do so.

His engagement to conduct the correspondence course in his specialty grew out of a demand for instruction of this kind that has become more insistent from year to year," states Secretary Mallory. "It was decided to organize the course for nonresidents in order to accommodate those whose studies or connections prevented attendance in classrooms in Chicago. Students in different parts of the country are already pursuing it by correspondence and we believe that as it becomes more widely known a great number will avail themselves of it."

For Practical Oil Men

The course in petroleum geology in the University of Chicago presupposes such acquaintnce with the elements of historical geology as can be gained from the university's course entitled "General Geology." The course covers the fundamental principles of the geology of petroleum designed to meet the needs of students who have a general knowledge of geology and who are unacquainted with its application to petroleum. It will, however, appeal also to some who have a practical knowledge of oil field geological methods but are lacking in the underlying principles, so necessary to well-balanced field work. The course includes a detailed study of: (1) facts, deductions and theories of the origin, migration and accumulation of petroleum, illustrated by examples from typical fields; (2) stratigraphy and structural conditions of the large producing oil provinces of the United States, and the details of local structures where the oil has ben concentrated into pools; (3) indications of oil in the different provinces with an outline of the methods for making oil field investigations and writing reports; (4) brief study of the underground conditions in producing oil and gas fields and methods of geologic work to help increase the yield of oil and prevent losses.

General Geology Course

As stated, the course in petroleum geology has as a prerequisite a course in general geology or an equivalent course. This course in general geology is also given by the University of Chicago by correspondence and treats of the leading facts and principles of geology and the more important events of geological history. It embraces the following general subjects: (1) the materials of the earth; (2) physiographic geology—the work of atmosphere, running water, glaciers, waves and currents, and organic agencies treated in a manner to supplement the physiographic studies of the preceding course; (3) volcanic, diastrophic and structural geology; (4) elementary studies in the interpretation of topographic and geologic maps; (5) historical geology—a systematic study of the development of the series of geological formations, with special reference to the evolution of the North American continent and the historical development of life forms; (6) economic geology; (7) a special geological report on a particular area in the student's own vicinity. This course is adapted to the needs of teachers in high schools and academies, to those interested in economic geology, and also to students not intending to specialize in geology.

May Enter Any Time

Workers in the oil industry need not wait for the beginning a new year or semester to take up these studies in geology. A person may enter these home-study courses for which he is prepared at any time by taking the proper steps to begin the work. A student may advance as rapidly as his ability and leisure for study permit.

Persons desiring to take up these studies in geology should address for information, as to the necessary procedure, the Home Study Department, the University of Chicago, Chicago, Ill. He may in that way receive full information upon any details in which he may be interested and obtain a form of application for instruction which will acquaint him with information the university will wish to obtain concerning his qualifications for beginning the course. He may continues his studies as far as he likes and eventually obtain the much coveted Bachelor degree of the university and be placed on an educational equality with those whose more favorable opportunities have permitted them to reside in the vicinity of the university and devote their entire time in study.

Each major course will demand about 200 hours of work and a student may have 12 months from the end of the quarter in which he registers for finishing the course or courses he enters. One major study commands one-thirty-sixth of the total amount of college credit required for this bachelor degree. So it is if the student has but little time for this work he can proceed and if he has more leisure his progress can be rapid as he cares to make it.

Each Lesson of Value

In taking these courses the student who is interested in these geological studies should not be discouraged by the thought that he may not be able to complete them. Every lesson will be just so much knowledge stored away and each lesson will enable him to discuss with more intelligence the problems of the oil fields. A man who has been associated with the oil fields will be better equipped for practical geological work when he concludes this course than is the favored student residing in Chicago because with the knowledge he derives from these studies will be combined his field experience and insight into the methods of detecting the petroleum treasures below the earth's surface. There is little doubt that in the years to come some of the most distinguished petroleum geologists who achieve fame and fortune will owe the beginning of their professional work to the foresight and enterprise of the University of Chicago in making its educational facilities available to ambitious men who must study and progress while they earn their living in the oil fields, refineries and distributing branches of the petroleum industry. No matter at what hours of the day or night they may find leisure hours for these tasks and no matter where they may be called in their work their correspondence college course can follow them and they can achieve success.

HUMAN SIDE REVEALED WHEN OIL MEN WERE ENTERTAINED AT FORT WORTH

One of the pleasantest memories of the meeting of the American Petroleum Institute at Fort Worth, Tex., is of the hospitality of Amon G. Carter of the Fort Worth Star Telegram, which is recorded in the following from that publication:

When Charles E. Mitchell, the president of the National City Bank of New York, slapped the president of the Standard Oil Co. of New York on the back and shouted, "Hello, Bert, how in the world are you?" And Herbert Lee Pratt returned the slap with "Hi, Charlie, glad to see you," the moment was auspicious for glimpsing the human side of leaders of giant industries. Genial, friendly, human to the point of comraderie, 30 leaders of the largest oil and banking institutions in the United States and world leaders in their respective lines, were guests Wednesday night of Amon G. Carter, at his home. They "unbent" like college frat boys.

Charles E. Mitchell, youngest president of a large bank in the world and president of the largest bank in America, was "Charlie" to the crowd of his friends. Walter Teagle, president of the Standard Oil Co. of New Jersey, was "Walter," and J. C. Donnell, president of the Ohio Oil Co., called them all by their first names.

"With the compliments of the Standard Oil Co.," said Walter Teagle to Harry Sinclair, as he served him a tray of food, while acting as waiter.

"Thank you, that's the only thing I've ever received complimentary from the Standard Oil Co." said the president of the Sinclair Oil Companies.

Look for Human Side

Timid and friendly, Mitchell is characterized as "lovable" by his friends who know him best. Perhaps in his formula for sizing up people, his ironclad rule of requirement, in measure, explains the nature of a man called "lovable."

"How human is he?"

That is C. E. Mitchell's test of a man.

"In dealing with men I always look for that 'something human' first. A fellow with a stiff spine can't deliver the goods in this day and age. But if he has a warm, free, human touch, he can usually do the job, granted he has the background, of course. It's a great game, looking for an honest-to-goodness unself-conscious human, human being. Don't laugh. They are scarce. To play the big game a man has to be so human that he is a mind reader of any other human being who is a human. Look at these fellows here, friendly, best fellows on earth."

He named over a score of the men present as examples of the natural humanness he admires and requires.

Saw Spain's Gold

J. C. Donnell came along and Mitchell began again his discussion of Belgium and French money, "You know the phrase as common in the banking world as 'I'm from Missouri' is 'Show me the gold of Spain.' I had the privilege while I was in Spain of going into the vault, seeing the 'tin door' opened and with my own eyes viewing the gold of Spain. It is there. I saw it."

Mitchell lives in Tuxedo, N. Y., one-half the year and the other half he spends in Southampton, L. I.

"My idea of life is to take nothing seriously," he said. "Another day is another day, that's all."

Herbert Lee Pratt addressed him, "Boy, we're having as good a time in Fort Worth as we had in the Mayflower with Calvin Coolidge, aren't we?"

"Sure are," Mitchell replied.

Pratt revealed the fact that President Coolidge and Charles E. Mitchell were classmates at Amherst College. "They are personal friends and work together like a clock's machinery," Pratt said. Pratt is a graduate of the same college. He told of the voyage of President Coolidge in "The Mayflower" when he and Mitchell were guests.

Mitchell was presented with a silver-mounted cow horn, the inscription of which showed him an honorary life member of the Longhorn Society of Fort Worth and a huge spur that made him a member of the Bronc Busters' Society,

(Continued on Page 114)

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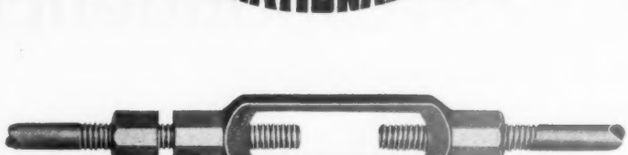

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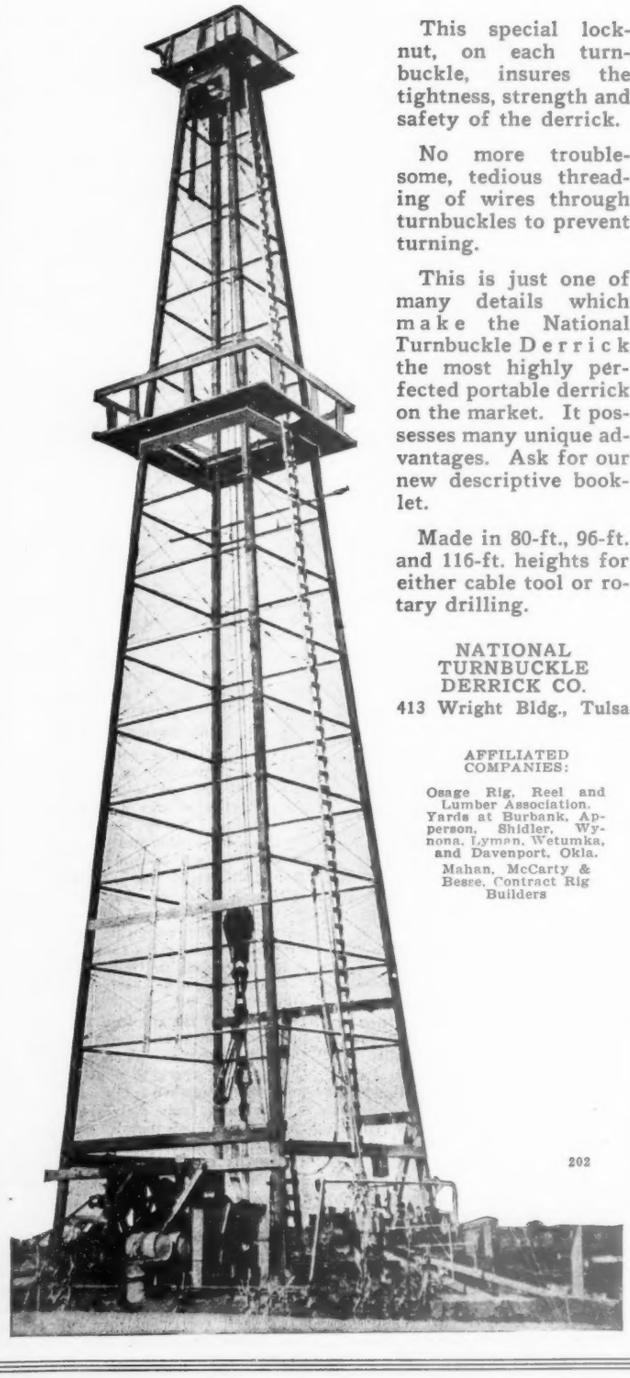

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Electrolytic Action Cause of Corrosion And Leakage Losses

A method of reducing losses resultant upon leakages in steel tanks and pipe lines in the oil industry by the use of commercially pure iron instead of ordinary steel is suggested in Pure Iron Era, a magazine devoted to industrial conservation. The article is headed "Reducing Losses Due to Corrosion in the Oil Industry."

Corrosion, especially of the pitted type, is caused by electrolytic action, according to the article. Whenever two dissimilar metals are in contact in the presence of an "electrolyte" or fluid capable of conducting a current, an electric circuit is formed and a measurable flow of current is generated. Advantage of this principle is taken in the ordinary commercial battery cell. In such a battery, the "positive pole" or the metal plate from which the current flows within the electrolyte, is very quickly destroyed and the "negative pole" which receives the charge is correspondingly built up.

When the iron used in oil tank plates is contaminated with appreciable amounts of impurities such as exist in ordinary commercial steel, a similar battery action is set up. These impurities are metallic or metalloid in nature and further tend to segregate in localized spots or areas Being dissimilar to the iron itself, electric couples are formed on the surface of the plate in the presence of atmospheric moisture, steam, fog or water, any one of which may act as an electrolyte. Just as in the case of the commercial battery, the more positive element is destroyed. Very soon a small pit appears in the surface of the plate which shortly deepens until a hole has been eaten through the plate. Day and night, all over the entire surface of the ordinary steel tank, millions of little batteries (formed by segregated impurities and the surrounding iron) keep drilling away, forming first pits and then holes.

One reason for the severity of corrosive action in the oil industry is the frequent presence of small quantities of salt water in the flow of crude oil from the well. Since water is sometimes used in the conveying of oil through long lines to reduce the pipe friction, it is evident that this entrained salt water will find its way to the sides of the pipe where it will cause deep pits.

A practical solution to this problem has been found in the use of commercially pure ingot iron, a unique metal that was not discovered by accident but which was made after years of experiment to resist corrosion.

That ordinary steel does not resist saline conditions as satisfactorily as ingot iron is well shown by the following weight loss data which was taken from tests made with samples of steel and ingot iron under identical test conditions.

Samples immersed in 3 per cent solution at room temperature for 210 days.

Material—	Weight loss Per cent
Ingot iron	7.91
Steel	9.76

Probably the most severe service in the oil industry is met in the condensers. Condenser tubes of ordinary steel and charcoal iron last but a comparatively short time, because sulphur compounds form from the oil and the cooling water is often corrosive. That it pays to use ingot iron under these conditions has been proved by one of the largest oil refining companies in America which issues the following statement: "We have received four years' service from Armco ingot iron tubes installed in one of our condenser boxes which makes two runs a day from the crude oil still. Steel tubes gave but six months' service under the same conditions."

The trace of sulphuric acid which remains in certain kinds of oil after refining also has a deleterious effect on the ferrous metal equipment. Ingot iron resists this sort of an attack better than steel, since the total impurities have been reduced to less than 16/100 of 1 per cent. Thus the battery action which causes rust is reduced to a minimum and as a result service time is raised to a maximum.

LUBRICATING OIL PRODUCTION IN U. S.

(Continued from Page 21)

Kansas refineries made 8.0 per cent of our total output of lubricating oil—the Texas and Texas Gulf Coast refineries made 24.2 per cent and the Arkansas-Louisiana and Louisiana Gulf Coast refineries made 2.9, or a total of 35.1 per cent of the country's output. In the year 1923 the Mid-Continent-Gulf Coast refineries made 35.9 per cent of our lubricants.

From January 1 to September 30 of this year the Rocky Mountain refineries made 1.7 per cent of our lubricating oil—and in the year 1923 they also made 1.7 per cent.

In the first nine months of this year the California refineries made 9.0 per cent of our lubricating oils—and in the year 1923 they made 8.9 per cent.

In these four widely separated areas that produce essentially different qualities of crude oil, the almost identical recovery of lubricating oil for the first nine months of 1924 and for the year 1923 is amazing, as indicating the marvelous uniformity with which these hundreds of refineries are operated over measurable periods of time—at least so far as lubricating oil is concerned.

However, in analyzing the ownership of the refineries that make lubricating oils, and of the refineries making gasoline, we find the ownership of the lubricating oil refineries almost exclusively in the hands of the so-called Standard group and a relatively few of the largest independent refiners.

Sixty Years Growth

The manufacture of lubricating oil is old and established—the result of 60 years' growth—and because of its almost universal use in practically every industry in the world its market is definitely known, and "measurable."

Gasoline, however, as a great factor in industry, is only about 20 years old—and fuel oil, in its new industrial relationship, is relatively recent. Hence we might say that refining has "expanded" in three stages: (1) the "lubricating oil-kerosene stage that dominated the industry until the arrival of the automobile—(2) the "gasoline" stage that has dominated the industry during the recent years—(3) the fuel oil stage that, because of a present overproduction of crude oil is, at least temporarily, a powerful factor in the industry's price structure.

The "Independent," as a producer and refiner, rode into the industry on the automobile, gasoline and the development of the Mid-Continent. And, from a product standpoint, the independent refiner has contributed a larger proportion of the total gasoline output than of the total lubricating oil output. Taken in the aggregate, the independent refiner started making lubricating oil 40 years after the lubricating oil industry started.

On January 1, 1924 the stock of lubricating oil was 242,785,000 gallons, as shown in Table 2. September 30, 1924 it was 243,149,000 gallons—an increase of 346,000 gallons in nine months.

Adding domestic production (858,364,295 gallons) to imports (394,355 gallons) gives a total "current supply" of about 858,758,000 gallons.

And adding exports (293,195,237 gallons) to domestic consumption (565,199,270 gallons) gives a total "demand" of about 858,394,000 gallons.

In other words, over this nine months period the current supply of lubricating oil was only four-tenths of one per cent greater than the demand.

Demand Out Ran Supply

During the first nine months of 1923 the current supply of lubricating oil was 816,711,000 gallons and the demand 837,432,000 gallons. This means that in the first nine months of 1923 we con-

sumed and exported 20,721,000 gallons more lubricating oil than we produced and imported—and this in the face of the greatest production of crude oil, the greatest production of gasoline and the greatest registration of motor vehicles, we had ever known, up to that time.

Referring to Table 3 we find that on January 1, 1918 we had in storage 136,852,000 gallons of lubricating oil—and on September 30, 1924 there were 243,149,000 gallons. In this 81-month period our stocks increased 106,293,000 gallons.

However, from January 1, 1918 to September 30, 1924, we made about 6,547,000,000 gallons of lubricating oil—and imported 3,421,000 gallons, making our total "current supply" 6,550,000,000 gallons.

During the same period we exported 2,210,000,000 gallons and consumed 4,233,000,000 gallons here at home—a total demand of 6,444,000,000 gallons.

Balancing current supply against demand we find that we produced and imported 6,550,000,000 gallons of lubricating oil and consumed and exported 6,444,000,000 gallons. In other words, over a period of six years and nine months, our current supply was only 1.7 per cent greater than our demand.

In comparing the movement of gasoline during the period from January 1, 1918 to September 30, 1924 we find that we produced and imported 38,405,000,000 gallons—and consumed and exported 37,589,000,000—a difference of 916,000,000 gallons.

In other words, our current supply of gasoline, over the 81-month period, was only 2.4 per cent greater than our demand.

Exports Surprising

Believing that we are the greatest industrial nation in the world, and the largest users of machinery, it comes as something of a surprise to find that from the time we were in the midst of the World War (January 1, 1918) to the end of September 1924 we exported to foreign countries almost exactly half as much lubricating oil as we consumed here at home.

In studying Table 2 it is interesting to note that in 1919 our exports were greater than in 1918. In Europe, the reaction from the prolonged war-time restrictions on constructive industries was reflected in an increase in our exports of 128,000,000 gallons, or 46 per cent, compared with an increase in our domestic consumption of 47,000,000 gallons, or 8 per cent. With the reaction of 1921 our exports dropped 114,000,000 gallons compared with a drop in domestic consumption of 88,000,000 gallons. Beginning with 1922 both exports and domestic consumption have grown steadily.

For the first nine months of 1924 exports have been at the rate of 390,000,000 gallons for the year, compared with 750,000,000 gallons for our domestic consumption. Using this estimate for the full year 1924, we find that from January 1, 1918 to the end of this year (seven full years) our exports have increased about 132,000,000 gallons and our domestic consumption 173,000,000 gallons.

In other words, over this seven-year period, our export market has grown nearly as fast as our domestic market.

At the end of 1918 there were 6,146,000 motor vehicles registered in the United States—and at the end of 1923 there were 15,092,000, or nearly 2½ times as many.

In the year 1918 we consumed 13,822,000 bbls. of lubricating oil in the United States and in 1923 the consumption was 17,617,000 bbls.—an increase of about 27.5 per cent.

Setting up in tabular form these increases in these two closely related industries we have:

	Lubricating Oils Barrels	Moto-Vehicles
1918	13,822,000	6,146,000
1923	17,620,000	15,092,000
Increase .	3,798,000	8,946,000

Cars Using Less

Dividing all of the industries using lubricating oils into two groups—with the motor vehicle industry in one group and "all other industries" in the other groups—we find that in 1918, due to war conditions, the "other industries" used more than their peace-time requirements of lubricating oils, while the motor vehicle industry used less. On the other hand it is also true that, on a mileage basis, cars and trucks, in 1918 used substantially more lubricating oil than they are using today. In order to reduce these consumptive requirements to a concrete basis let's concede that in 1918 the average car and truck consumed three-fourths of a barrel of lubricating oil and that in 1923 they consumed one-half barrel each. Set up in tabular form the relative consumption would be as follows:

	Barrels
1918—Motor vehicles ..... (6,146,000×.75 bbl. each)	4,600,000
Other industries	9,222,000
Total	13,822,000
1923—Motor vehicles ..... (15,000,000×.5 bbl. each)	7,500,000
Other industries	10,122,000
Total	17,622,000

The largest users of lubricating oils are our transportation industries — and obviously, since 1918, the motor vehicle industry has expanded far more rapidly than any other form of transportation activity. The increase in registration from 6,146,000 to 15,092,000 is probably fairly reflected by an increase in lubricating oil consumption from 4,600,000 barrels to 7,500,000 barrels in 1923.

And it is also probably true that while the "other industries" were operating abnormally in 1918 and consuming 9,222,000 bbls., they were operating normally in 1923 and consuming 10,122,000 bbls.

Demands for Lubricants

The following tabulation gives a general idea of the demands that some of the "lubricating-oil-using" industries are today making on the petroleum industry:

Motor Vehicles—	
Automobiles	13,465,000
Motor trucks	1,627,000
Steam Railroads—	
Locomotives	68,000
Passenger coaches	57,000
Freight cars	2,368,000
Tank cars	140,000
Electric Railroads—cars.....	104,000
Street Railways—Cars	.....
Merchant Marine—All vessels..	27,000
Naval Vessels—Fit for service..	774
Manufacturing Industries—	
Prime movers—	
Steam engines	116,000
Steam turbines	6,000
Internal combustion engines	33,000
Water wheels	800
Motors and generators....	996,000
Power driven machines	*
Farms (6,440,000)—Tractors....	400,000
Wagons, buggies, machinery..	.....
Miscellaneous industries—	
Tractors, not on farms	100,000
Road building machinery	.....
Elevators in buildings	.....
Airplanes	.....
Domestic use of lubricating oils	.....

*Lathes, planers, drill presses, etc.

Looking into the next few years, with their absolute assurance of substantial increases in motor vehicle registrations and substantial expansions in all of the "other industries" that are users of lubricating oils, there can be no reasonable doubt as to the growing demands that will be made upon the lubricating oil end of the industry.

If, during the next few years, our annual production of crude oil is about the same that it has been in 1923 and '24, it is easily conceivable that the normal expansion of our industries will be such that the refiners will install many more cracking plants and the automobile makers will begin thinking serious of installing "more mileage" motors in their cars.

With enough coal in the ground to last several hundred years it is unlikely that we will jeopardize our supply of motor fuel and lubricating oil by making too much fuel oil.

And with the positive knowledge that "when needed," we can have automobile motors that will cut our present gasoline consumption in half, it is equally unlikely that we will have to push our cracking plants to the point of jeopardizing our supply of lubricating oil.

STANDARD OIL CHIEF DIES

LOUISVILLE, Ky., Dec. 27.—C. T. Collings, 76, chairman of the board of directors of the Standard Oil Co. of Kentucky and former president, died at his home here.

Beautiful, but Dumb

THEY knock the girl who is beautiful but dumb, but she isn't the girl I am sorry for.

The real tragedy of life is the girl who is homely but dumb.

If a girl hasn't any figure, she ought at least to be able to add them up.

The Nye Die isn't as highly polished as a saxaphone but it lives a nobler life.

And it certainly makes sweeter music for a plumber or steamfitter.

The Nye Die is better than beautiful but dumb—it is beautiful but useful.

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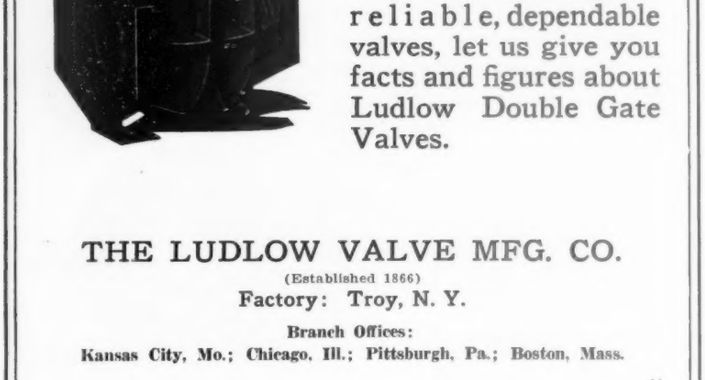

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HUMAN SIDE REVEALED BY OIL MEN AT FT. WORTH

(Continued from Page 111)

and no sooner had they been presented than Mitchell was found wearing his spur, blowing his horn and later leading a distinguished group in singing old familiar melodies. The group included Henry L. Doherty, Harry Sinclair, E. W. Marland, L. E. Phillips, Waite Phillips and Frank Phillips. All of the guests were presented with polished cow horns, with buckskin straps, which they immediately slung over their shoulders and began to use.

The dinner, which was served buffet style, was given in honor of Mitchell, E. P. Swenson, chairman of the board of the National City Bank; Gordon Rentschler, one of the banks directors, and Lee Olwell, assistant to the president of the National City, all of New York.

After the dinner Mitchell and Swenson and a few others of the party visited the homes of Morris E. Berney and Herman Gartner, nearby, and later the entire party went to the River Crest Country Club for a dance.

The guest list included:

Walter Teagle, president of the Standard Oil Co. of New Jersey, New York.

Judge Amos L. Beaty, president of The Texas Co., New York.

Axtell J. Byles, president of the Tidewater Oil Co., New York.

Col. Robert W. Stewart, president of Standard Oil Co. of Indiana, Chicago.

K. R. Kingsbury, president of the Standard Oil Co. of California, San Francisco.

E. C. Lufkin, chairman of the board of The Texas Co., New York.

J. Edgar Pew, vice president of the Sun Co., Dallas.

Edward Prizer, chairman of the board of the Vacuum Oil Co., New York.

R. D. Benson, chairman of the board of the Tidewater Oil Co., New York.

W. F. Gates, president of the Prairie Pipe Line Co., Independence, Kans.

A. F. Corwin, president of the Carter Oil Co., New York.

Cal K. Clarke, vice president of the Standard Oil Co. of Louisiana, Baton Rouge, La.

Judge C. B. Ames, general counsel, The Texas Co., New York.

Henry McGraw, president Gypsy Oil Co., Tulsa, Okla.

W. B. Pyron, vice president Gulf Production Co., Houston.

Underwood Nazro, vice president Gulf Production Co., Houston.

Herbert L. Pratt, president Standard Oil Co. of New York, New York.

E. T. Wilson, chairman of the board, Mutual Oil Co., Denver, Colo.

J. J. McGraw, president Exchange National Bank, Tulsa, Okla.

C. E. Crawley, vice president Sinclair Oil Co., New York.

Thomas A. O'Donnell, president American Petroleum Institute, San Francisco.

J. C. Donnell, president Ohio Oil Co., Findlay, Ohio.

Henry L. Doherty, president Cities Service Companies, New York.

W. S. Farish, president Humble Oil & Refining Co., Houston.

H. C. Weiss, vice president Humble Oil & Refining Co., Houston.

H. F. Sinclair, president of the Sinclair Companies, New York.

W. S. Fitzgerald, vice president Prairie Oil & Gas Co., Independence, Kans.

D. R. Weller, president Standard Oil Co. of Louisiana, Baton Rouge, La.

Frank Phillips, president Phillips Petroleum Co., Bartlesville, Okla.

Waite Phillips, president Waite-Phillips Petroleum Co., Tulsa, Okla.

H. K. McCann, president McCann Advertising Co., New York.

L. W. Ellis, vice president McCann Advertising Co., New York.

A. E. Humphreys, president Humphreys-Boyd Oil Co., Denver, Colo.

L. E. Phillips, vice president of Phillips Petroleum Co., Bartlesville, Okla.

C. L. Wrightsman, president Wrightsman Petroleum Co., Tulsa, Okla.

E. W. Marland, president Marland Oil & Refining Co., Ponca City, Okla.

J. W. Van Dyke, president Atlantic Refining Co., Philadelphia, Pa.

Julian Corporation Control Passes in New Reorganization

LOS ANGELES, Calif., Dec. 27.—Floating of a $5,000,000 bond issue to increase its working capital and construction during 1925 of a big oil refinery in Los Angeles are steps planned by the Julian Petroleum Corp., following an almost complete reorganization of the concern's affairs announced by C. C. Julian, president.

All but Julian and one other of the directors of the Julian company, O. S. Witherell, have resigned and 10 new directors have been elected. By the reorganization, $2,000,000 in new capital has been added.

Control of the corporation passed from Julian's hands through the bringing in of new capital, but Julian will remain as president and directing head.

Seventeen producing oil wells in southern California, at Huntington Beach, Signal Hill and Torrance, have been taken over in the deal which combines the Julian concern and the Lewis Oil Corp., which has operated for years in the West.

The first steps by the reorganized Julian firm in an expensive program will be the construction of a long planned oil refinery in or near Los Angeles, the floating of a $5,000,000 bond issue to finance the increased operations and the establishment of an oil tanker steamship line from Los Angeles harbor to Atlantic ports.

The new directors include Senator William H. King of Utah; Edmond C. Harris, New York and Tampico oil man; Frank Williams, New York banker; E. H. Fisher, Tulsa oil man; Thompson Ross, Chicago financier; F. C. Lewis, New York oil man; Judge C. A. Sheppard, Portland, Ore., capitalist; H. L. Campbell, Indianapolis automobile manufacturer; J. Del Rio, Tampico oil man, and Howard White, Raleigh, N. C., lumberman.

With the addition of the Lewis Oil Corp.'s holdings, Julian said, the Julian concern will now have a daily average oil run of approximately 8,000 bbls. daily.

While Julian expressed regret that he was forced to lose a substantial controlling interest, he said he was compelled to do it for the good of his stockholders.

Mr. Julian's career in southern California oil fields has been spectacular. From an overalled oil driller at $7 a day, he came into prominence when Santa Fe Springs roared in as one of the biggest gusher fields. In 1922 he organized his first oil syndicate. In May, 1923, he formed the Julian Petroleum Corp., incorporated in Delaware. The authorized capital is now $30,000,000, divided into 600,000 shares of 8 per cent cumulative preferred stock, par value $50, and 600,000 shares of common stock, no par value.

FOLDERS DESCRIBE PRODUCTS

Announcement has just been made by Wilson Oil Tools Corp. of Los Angeles that three new pieces of advertising literature of special interest have just come off the press and are now ready for distribution by this firm. These new folders have been very carefully prepared and are fully descriptive of Wilson perfection underreamers, Wilson tubing tongs and Wilson speed elevators, which are said to have recently broken three records in the California fields.

TO OPEN NEW MEXICAN FIELD

A special decree of the Mexican Government opens for exploration and drilling by foreign interests a virgin field 40 miles south of Rio Grande and 90 miles from the coast. The field is 18 miles long and 8 miles wide. Mexican Petroleum, Royal Dutch, Standard of New Jersey, Atlantic Gulf, and Gulf Oil Co. are said to be interested in the development.

OIL CONSERVATION AND ITS PROFITS

(Continued from Page 110)

and during the same period we consumed and exported 3,884,000,000 bbls. Our supply exceeded our demand by 246,000,000 bbls. Taking into consideration the fact that in these six years we produced over 4,000,000,000 bbls. of oil, and that in the year 1923 the increase over 1922 amounted to 175,000,000 bbls., it is amazing that, over this 82-month period, we have increased our stocks only 246,000,000 bbls.

Surplus Under 2 Per Cent

In this same period our supply of gasoline (production plus imports) exceeded our demand (consumption plus exports) by 740,000,000 gallons, or less than 2 per cent. There isn't much room for conservation in an industry which, over an 82-month period, supplies 39,181,000,000 gallons of gasoline against a demand of 38,441,000,000 gallons.

In this period our supply of kerosene was 15,134,000,000 gallons—and the demand was 15,324,000,000 gallons. The demand exceeded the supply by 190,000,000 gallons—hence, at the end of this 82-month period we had less kerosene in storage than we had at the beginning of 1918.

In this period our supply of fuel and gas oil was 68,485,000,000 gallons—and the demand was 67,415,000,000 gallons—an adjustment so delicately balanced that with over 67,000,000,000 gallons involved the supply exceeded the demand by only 1½ per cent.

In this 82-month period our supply of lubricating oil was 6,647,000,000 gallons against a demand of 6,536,000,000 gallons—or a supply that exceeded the demand by less than 2 per cent.

Taken by and large, it must be obvious to the openminded investigator of basic conditions in the petroleum industry that, in view of the highly competitive conditions in the refining end of the industry, it is little short of miraculous that 90 per cent of the aggregate output of our hundreds of refineries (represented by the four foregoing products) is so nicely adjusted to the demand that three of them show surpluses of less than 2 per cent while the fourth shows a small loss.

Overproduction in Refined

Modern refining has been developed to the point that, through a quick and large increase in the number of cracking plants, a condition could be brought about that, economically, would have the same effect as an actual overproduction of crude oil—simply by meeting the demand for motor fuel by using very substantially less crude oil. Hence the producer of crude oil is not the only person that could bring about a condition of "overproduction."

But obviously the refining and the cracking phases of the industry do not fall within the scope of any recommendations for legislative action from the newly-constituted Conservation Board.

In meeting the world's demands for constantly increasing amounts of petroleum products the oil industry can open either of two doors—one to larger production of crude oil—the other to larger refinery recoveries. It happens that both doors are now open—and the producer is producing more crude oil at the same time that the refiner is producing more motor fuel from each barrel of crude. Hence, in the broad sense of the word, the refiner is "constructively responsible" for the present overproduction of crude oil.

One could visualize an ideal conservation program—if a way could be found whereby the refineries of the United States could be put on a cracking-equipped and operating basis for getting "the last per cent" of motor fuel from the crude oil—and the production of crude oil could at the same time be so regulated that there would be just enough crude to supply the refineries. The producers would bring substantially less oil to the surface of the ground than they are bringing today—but they would get substantially more per barrel for what they produced.

Even though this is concededly the statement of an ideal condition, the fact remains that the refiners have gone a long way in this direction—and when the producers go an equal distance, either because they can't find enough oil or because they produce less as a result of governmentally "retarded" operations, they will find that the price of their crude will yield them a margin of profit unknown under present conditions.

No fact could be more outstanding than the constantly decreasing price of crude oil in the face of constantly increasing production, as shown on the accompanying graph.

And if, by cooperating with the Federal Oil Conservation Board, a way can be worked out for "constructively retarding" the bringing of crude oil to the surface of the ground, with the result that our present stocks of crude oil are materially reduced, there can be but one result to the price of crude oil—a very substantial advance that will last just so long as there is a narrow margin between the supply and the demand—and the stocks are held at low levels.

The simple, fundamental law of a balanced supply and demand with small raw material stocks and high prices, is just as operatives in the oil business as in any other business. The only problem is—"How Can It Be Done?"

Obviously the petroleum industry has everything to gain by cooperating with the Government in working out a constructive program of conservation of crude oil. And any really effective conservation policy will be an ultimate and direct benefit to the producers because they will produce less barrels and get more for them. It will also benefit the refiners, for while they will pay more for their crude they will get more for their refined products.

And, finally, it will benefit the public. For after a long orgy of "cheap gasoline" they will finally learn that the price of "conservationally produced" gasoline will be based on what President Coolidge refers to as "essential values" which, unfortunately for everybody concerned, are lost sight of during periods of "overproductionally produced" gasoline.

Board Ready for Work

WASHINGTON, D. C., Dec. 27.—Members of the new Federal Oil Conservation Board have held their first meeting for the purpose of organizing. Secretary Work will be the chairman. It is understood the board will be ready for active proceedings as soon as the holidays are over. In the meantime details of the methods of gathering information are being formulated.

CALIFORNIA REFINERY NOVEMBER STATISTICS

Compiled by C. E. Steidel

There were 35 refineries reported to the United States Bureau of Mines as operating during the month of November, with an aggregate daily indicated capacity of 565,870 bbls. of crude oil. These plants were operating at 72.3 per cent of their capacity, running to stills a daily average of 409,459 bbls. of crude oil.

Gasoline — The production of gasoline during the month of November amounted to 101,347,476 gallons, a daily average of 3,378,249 gallons. This is an increase of 3,302,023 gallons over the October output. Compared to the production in November, 1923, a decrease of 4,848,251 gallons is noted. Stocks of gasoline increased 51,592,404 gallons and on November 30 amounted to 329,479,980 gallons. Production of engine distillate decreased 1,428,606, there being 5,256,257 gallons produced. Stocks increased 734,008 gallons and at the close of the month aggregated 7,868,489 gallons.

Kerosene — The kerosene production amounted to 31,696,915 gallons, which is an increase of 3,305,183 gallons over October output. Stocks at end of November were 48,925,532 gallons, an increase of 10,544,014 gallons over October stocks.

Gas and Fuel Oils—The production of gas and fuel oils was 359,329,098 gallons, a decrease of 14,200,673 gallons over October output. Stocks on November 30 were 806,703,044 gallons, an increase of 32,575,086 gallons over October stocks.

Lubricants — The output of lubricants during November were 9,255,413 gallons, an increase of 222,141 gallons over October production. Stocks decreased 489,177 gallons during November, and at the close of the month amounted to 16,304,257 gallons.

Oil run to stills (bbls.):	
Domestic crude	12,283,775
Unfinished oils rerun	569,005
Natural gas gasoline, run to stills or blended at refinery	154,470
Total oils run	13,007,250
Refined products:	
Gasoline, gals.	101,347,476
Engine distillate, gals.	5,256,257
Kerosene, gals.	31,696,915
Gas and fuel oils, gals.	359,329,098
Lubricants, gals.	9,255,413
Wax, lbs.	.....
Asphalt, tons	30,732
All other finished products, gals.	6,780,422
Unfinished oils, gals.	17,932,310
Refinery losses, gals.	7,505,914
Stocks on Hand at the Refineries in California, November 30	
Crude oil and unfinished products (bbls.):	
Domestic crude	8,851,767
Unfinished oils	*7,642,157
Total oils to be run	16,493,924
Finished products:	
Gasoline, gals.	329,479,980
Engine distillate, gals.	7,868,489
Kerosene, gals.	48,925,532
Gas and fuel oils, gals.	806,703,044
Lubricants, gals.	16,304,257
Wax, lbs.	43,598
Asphalt, tons	18,999
All other finished products, gals.	599,907

*Includes 227,654,890 gallons of tops (crude naphtha) in storage.

OIL INSPECTION TAX REDUCED IN MISSOURI

JEFFERSON CITY, Mo., Dec. 27.—A reduction of one-half a cent a barrel in the State oil inspection fee was announced by Asa Butler, State oil inspector.

The reduction cuts the inspection rate from 1½ cents to 1 cent a barrel. It was made, Mr. Butler explained, because the 1½-cent rate was producing too much revenue. Under the State law governing oil inspection the rate is to be only as much as is necessary to cover the cost of inspections, he added. The reduction becomes effective on the December inspections, which are paid by the oil dealers after January 1.

The decrease is made possible by the increased consumption of gasoline and oil products in the State, closer inspection by the deputy oil inspectors and economy in administration, Mr. Butler said. The department is provided with eight deputy inspectors working in various sections of the State, but in the last few months only seven have been employed.

This is the third reduction in the inspection rate in the last four years. The rate was reduced from 6 to 3 cents a barrel and later it was cut to 1½ cents.

KANSAS MAY ORDER GEOLOGIC RESEARCH

WICHITA, Kans., Dec. 27. — The broadest campaign of geologic research in the history of petroleum development in Kansas will be put into effect next spring if the Kansas legislature passes an appropriation bill to be recommended by Dr. Raymond C. Moore, State geologist.

Western Kansas will share equally with eastern Kansas in the campaign, Dr. Moore said.

"The State Geological Survey particularly is interested in making thorough detailed investigation in the western half of the State," Moore said. "Heretofore, most of the State's work has been in southeastern Kansas, owing to the meager financial aid given the survey. For this same reason the survey has played a comparatively small part in the development of our mineral resources."

An appropriation of $64,000 will be sought. A budget prepared by the State geologist provides that at least $40,000 of this sum shall be spent in topographical and sub-surface research.

In view of the recent discovery of oil in Russell County, it is believed members of the legislature from western Kansas will join with those from the oil producing areas of eastern Kansas and pass the geologic appropriation bill. Western Kansas today is an untested area of great petroleum potentiality, in the opinion of many authorities.

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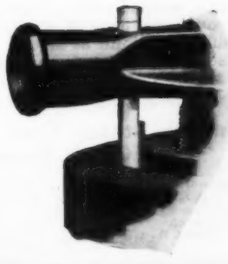

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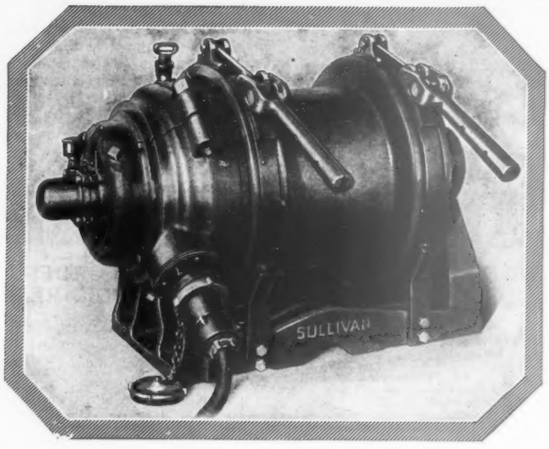

A NEW ELECTRIC HOIST

(Portable)

Sullivan engineers have designed a new portable hoist, electric motor driven. It is similar in power, size and adaptability to the Sullivan "Turbinair" Hoists which have become so popular, and both single and double drum models are available.

Sullivan Electric Hoists have 6½ H. P. motor, mounted in a tight casing inside the drum. Reduction gears and bearings are enclosed and splash oiled Ball and roller bearings throughout.

You can hoist a ton vertically on single line, or pull a 50-ton car on level track. The double drum hoist is compact and easy to handle for two rope jobs such as boom derrick work or car spotting.

If you want to reduce your light hoisting and haulage costs, try these new electric units.

Electric Hoist Dimensions

	1 Drum
Length, inches	29
Width, inches	15
Height, inches	19¼
Drums, length, inches	8¼
Drums, diameter, inches	11½
H. P.	6½
Capacity, lbs.	2000*
Speed at Max. Load, ft. per Min.	110
Drum Rope Capacity, ft. each	500
Weight, pounds	480

*For Vertical lift. **Catalog 1576-E**

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The most recent development in the art of jointing pipe is the bronze welded joint. This consists of a collar of tobin bronze built up over the ends of the pipe. Actual installations show that this results in a joint as strong as the pipe itself and the completed line is so flexible that the pipe may be welded continuously and allowed to sag into place in the bottom of the trench.

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NATURAL GAS IN 1923

(Continued from Page 109)

SUMMARY OF STATISTICS OF NATURAL GAS, 1919-1923

Quantity of natural gas consumed (millions of cubic feet):	1919	1920	1921	1922	1923
Domestic consumption	255,743	286,001	248,334	254,413	278,200
Industrial consumption:					
Carbon black	49,896	40,599	50,565	53,629	109,000
Field	169,787	202,108	182,305	197,850	343,070
Other industrial	270,490	269,502	180,848	256,654	277,745
Total consumed	745,916	798,210	662,052	762,546	1,008,136
Domestic (per cent)	34.3	35.8	37.5	33.4	27.6
Industrial (per cent)	65.7	64.2	62.5	66.6	72.4
Treated for natural-gas gasoline (millions of cubic feet)	480,404	496,431	465,097	545,139	876,711
Per cent of total consumption	64.4	62.2	70.3	71.5	86.9
Domestic consumers	2,501,000	2,615,000	2,631,000	3,015,000	3,234,000
Value of natural gas at wells (thousands of dollars)	*	*	*	84,873	100,959
Average per M. cu. ft. (cents)	*	*	*	11.1	10.0
Value of natural gas at points of consumption (thousands of dollars)	160,888	196,194	174,617	221,535	239,940
For domestic purposes	88,414	109,302	110,337	126,902	142,282
For industrail purposes	72,474	86,892	64,280	94,633	97,678
Average value per M cu. ft. (cents):					
For domestic purposes	34.6	38.2	44.4	49.9	51.1
For industrial purposes	72,474	86,892	64,280	94,633	97,678
Domestic and industrial	21.6	24.6	26.4	29.1	23.8
By-products of natural gas:					
Natural-gas gasoline:					
Quantity (thousands of gallons)	351,000	384,700	449,900	505,800	816,200
Value at plants (thous. of dollars)	64,197	71,788	61,815	72,711	77,200
Average value per gallon (cents)	18.3	18.7	13.7	14.4	9.5
Carbon black:					
Quantity (thousands of pounds)	52,100	51,300	59,800	67,800	138,200
Value at plants (thous. of dollars)	3,816	4,032	5,446	5,820	11,692
Average value per pound (cents)	7.3	7.9	9.1	8.6	8.5

*Figures not available prior to 1922.

All records were broken in the natural gas industry in the United States in 1923 by the consumption of 1,008,126,000,000 feet, having an estimated value of $101,000,000 at the wells and of $240,000,000 at points of consumption, according to data compiled by H. Backus and issued by the Department of the Interior through the Geological Survey. This quantity is 32 per cent more than that consumed in 1922 and 26 per cent more than that consumed in 1920, when the previous high record of consumption was attained.

All the States that are large producers except New York and Indiana recorded increased production, as measured by deliveries to consumers, and in Oklahoma, California and Louisiana gains in the quantity of natural gas delivered to consumers were made, ranging between 42,000,000,000 and 63,000,000,000 feet. In California enormous quantities of natural gas were produced, associated with petroleum, in the development of the Santa Fe Springs, Long Beach and Huntington Beach fields, but the greater part of the gas produced in these fields was wasted. Operators reported to the Geological Survey a production of 248,000,000,000 feet of gas in California in 1923, but of this amount only 131,000,000,000 feet was delivered to consumers.

Industrial consumption of natural gas in 1923 increased to 72 per cent of the total, the increase being chiefly in field consumption and in the manufacture of carbon black, and the average price of natural gas used for industrial purposes decreased from 18.6 cents in 1922 to 13.4 cents in 1923 at points of consumption. Although the ratio of domestic to total consumption decreased, the number of domestic consumers increased 219,200 during the year, bringing the total to approximately 3,125,000, and the average price of natural gas used for domestic purposes increased from 49.9 cents in 1922 to 51.1 cents in 1923 at points of consumption.

The interstate movement of natural gas increased from 179,000,000,000 feet in 1922 to almost 190,000,000,000 feet in 1923. West Virginia, which contributed over 20 per cent of the total credited to production and consumed less than 9 per cent of the total interstate movement of cent of the total interestate movement of natural gas.

DECLINE OF THE "GOLDEN LANE" PRODUCTION IN 1923

(Continued from Page 20)

June 30, 1923	1,101,000	157,000
July 7, 1923	1,119,000	159,000
July 14, 1923	1,083,000	155,000

Production of the Golden Lane during June and July, 1924, is given as follows:

	Total	Daily
June, 1924	3,270,000	109,000
July, 1924	3,488,000	112,500

Dropped 78 Per Cent

The foregoing figures, which are truly representatives of the course of crude oil production in the Golden Lane since May, 1922, show that the light oil output has dropped approximately 78 per cent since the article written in The Oil and Gas Journal was published on July 31, 1922.

As there was no statement in that article that the curtain would ring down on the Golden Lane, but merely that it was the opinion of certain oil men at that time that this would occur, there appears to be nothing to disclaim.

A. C. Bedford, chairman of the Board of the Standard Oil Co. of New Jersey, was widely quoted to the effect that some American companies have lost millions of dollars in Mexico. Practically all of the losses were those of companies investing large sums in development of production in the Golden Lane. The appearance of salt water in their wells caused them to lose production and that changed the whole aspect of the situation, as indicated by the course of actual production.

Of probably fifty oil companies investing heavily in light oil acreage in Mexico, and in development of that acreage during 1920, 1921 and 1922, perhaps only a half dozen remain with any considerable production.

The Wall Street Journal report of production for the week ended December 31, which is representative of preceding weeks, shows the following by companies:

	Total	Daily Average
Mexican Petroleum	541,000	77,000
Standard of New Jersey	25,000	3,600
Royal Dutch (Corona)	11,000	1,600
Mexican Seaboard	16,000	2,300
Sinclair Consolidated	3,000	430
Gulf Oil	57,000	8,100
Mexican Eagle	127,000	18,000
Atlantic Gulf	28,000	4,000
Penn Mex Fuel	20,000	2,900
The Texas Co.	4,000	600
Miscellaneous	47,000	6,700
Total	879,000	125,230

The production of the same concerns during the week ended July 1, 1922, the peak, is given as follows:

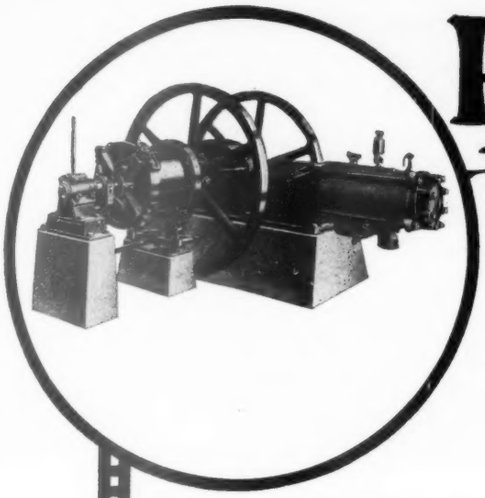
	Total	Daily Average
Mexican Petroleum	980,000	140,000
Standard of New Jersey	5,000	700
Royal Dutch (Corona)	136,000	19,400
Mexican Seaboard	869,000	124,000
Sinclair Consolidated	8,000	1,100
Gulf Oil	696,000	99,400
Mexican Eagle	620,000	87,500
Atlantic Gulf Oil	122,000	17,400
Penn Mex. Fuel	149,000	21,300
The Texas Co.	2,000	300
Miscellaneous	145,000	20,700
Total	3,732,000	531,400

To offset the loss of production in the southern fields, extensive drilling has taken place in areas between and around the famous old pools of the Golden Lane, but, as the production reports indicate, nothing of far-reaching importance has been found. At least there is no proof of any such discovery, and the production appears to be proof of the contrary.

Mexico may, and probably will, produce more oil than it has ever produced before, but it is extremely unlikely that the Golden Lane will ever repeat its record of 1921 and 1922.

AMERICANS GET CZECH RIGHTS?

A French group which secured oil concessions on Czecho-Slovakian State lands, according to a London report, has passed the rights to American interests.



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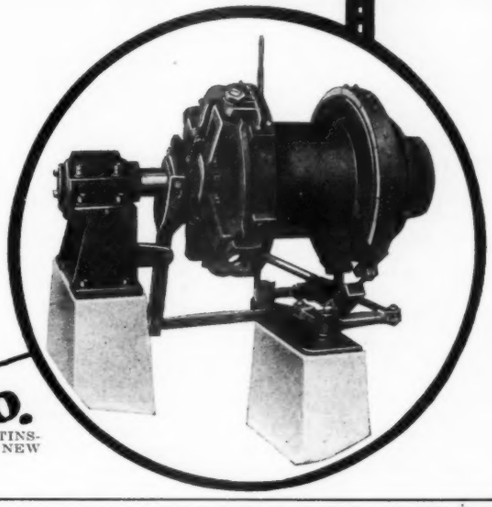

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- b. Reduces wear at most vital points.

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- b. Gain of two to four inches in minimum distance between hooks.
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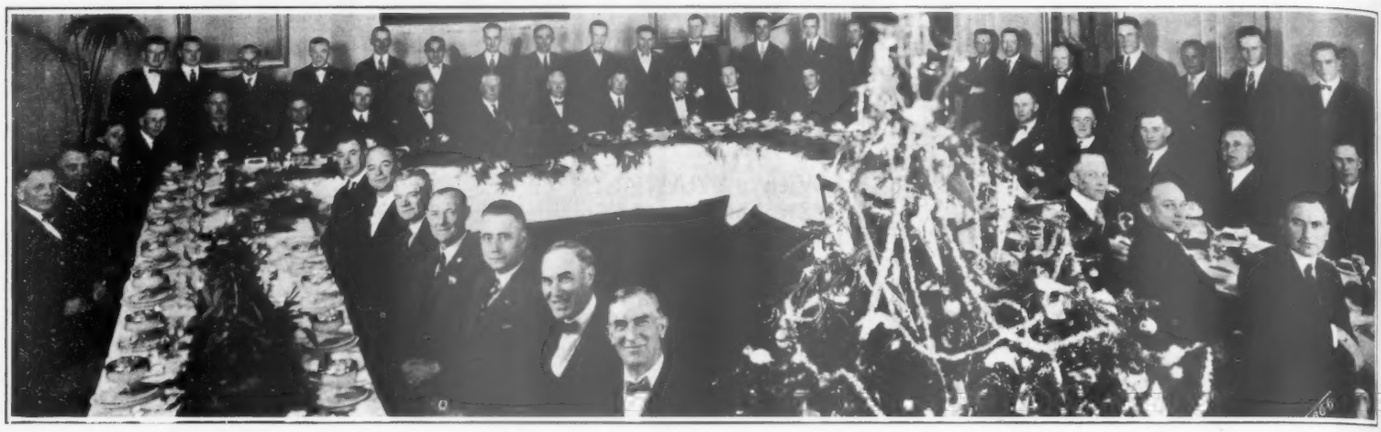

Fifty Axelson Machine Co. employes were given bonus checks and many other good things at the firm's annual Christmas dinner held in the Biltmore Hotel, Los Angeles, Calif., December 20. G. A. Axelson, president, and C. F. Axelson, secretary and treasurer of the company, had the roles of joint toastmasters, while Charles D. Wagner, sales manager of the company, acted as master of ceremonies. At the speakers' table, in addition to these three officials, sat D. F. Axelson, works manager; J. C. Axelson, general manager; W. H. Laury, metallurgist; A. G. Haglund, machine shop foreman; R. M. Pease, foreman St. Louis plant, and H. W. Platenberg, manager Mid-Continent division, each one an "old timer" who has won his Axelson "service stripes" and contributed to the successful and prosperous upbuilding of the concern.

Short talks were made by G. A. Axelson, C. F. Axelson, J. C. Axelson, D. F. Axelson and Charles D. Wagner.

The other Axelson employes who attended the dinner follow: L. G. Trembley, manager, Long Beach territory; J. H. Mottier, manager, Santa Fe Springs; Clyde Ellwood, Pittsburgh representative; D. H. Barnwell, manager Taft store; J. R. Walker, salesman Mid-Continent division; R. M. Humphreys, export manager; J. P. McFadden, representative, Casper, Wyo.; D. W. Nelson, manager lathe department; William Redd, Long Beach storekeeper; Ed Birdsall, Huntington Beach storekeeper; Roland Bolieau, Santa Fe Springs storekeeper; Donald Drenk, Torrance storekeeper; E. E. Kerfoot, comptroller; A. R. Flournoy, manager Torrance store; M. W. Jackson, manager Bakersfield store; C. E. Scott, salesman, Taft; D. G. Gall, manager Coalinga store; K. S. Ramey, sales department; R. O. Beeson, machine shop timekeeper; E. W. Ostrom, drafting department; Randall McKowan, drafting department; W. H. Jackson, purchasing agent; H. D. Young, foundry superintendent; Grant Painter, credit manager; Carl Fromme, lathe foreman; Victor Mancuso, sucker rod foreman; D. Lingenfelter, foundry timekeeper; Charles Drenk, pump foreman; B. H. Platts, account department; John McNamara, account department; William Jardh, chief engineer; William Hoffman, core room foreman; Martin Fleming, tool room foreman; Archie Hodd, cleaning room foreman; Enoch Earl, chief inspector; Charlie Dahl, carpenter; Guy H. Chaffee, foreman stock room; Sam Nichols, assistant machine shop timekeeper; Thomas Duff, foreman shipping department; Thomas Cass, night foreman, and R. E. Imhoff, assistant purchasing agent.

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(c) To submit statements in detail to bankers or note brokers as a basis for credit.
(d) To submit certified statements to mercantile agencies or others calling for periodical reports.
(e) To ascertain the true causes for fluctuations of Profit or Expense.
(f) To state the facts in disputes or litigation or investigate the causes of losses for creditors or stockholders.
(g) As a basis for the preparation of Federal Tax returns.

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Operators Agree on Use of Vacuum in The Burbank Field

A meeting of representatives of companies operating in the Burbank Field in Oklahoma was held at the office of the Mid-Continent Oil & Gas Association on December 29, when the following motion was unanimously approved:

"That the Osage operators in the Burbank Field have the alternative of restricting vacuum to 10 points or keeping the sand continuously flooded (flooding to mean covering the top of the first oil pay sand). This agreement shall remain in effect up to and including June 30, 1925. Any operator desiring to carry more than 10 points vacuum in any well in which the sand is covered shall notify the offset owner and satisfy him that the pay sand is covered in such well. In case of dispute, matter shall be determined by vote of two arbitrators appointed one by each party. If arbitrators cannot agree, they shall appoint a third, and vote of majority shall be final and binding on all parties."

Monday's action was not final as several operating companies were not represented at the meeting. The absentees will be notified of Monday's action and if they are agreeable to it, notice will be given to all Osage operators in the Burbank Field.

The question will be taken up again on June 1 for action during the remainder of the year.

Those present at Monday's meeting were: J. B. Steele, Kewanee Oil & Gas Co.; Fred H. Rinsch, Gardner Petroleum Co.; J. J. Conry, Carter Oil Co.; G. O. Moody, Cosden Oil & Gas Co.; A. A. Beard, Tidal-Osage Oil Co.; H. M. Stalcup, Skelly Oil Co.; J. D. Iams, Gypsy Oil Co.; J. A. Veasey, Carter Oil Co.; S. S. Smith, Roxana Petroleum Corp.; J. A. Woolfe, Prairie Oil & Gas Co.; A. S. Ritchie, Marland Oil Co.; J. R. McGinley, Kay County Gas Co.; W. J. Moran, Midland Oil Co.; R. A. Griffith, Sinclair Oil & Gas Co.; Clyde Alexander, Phillips Petroleum Co.; George D. Foster, Devonian Oil Co.; M. E. Wagner, Mid-Kansas Oil & Gas Co.; J. H. Hill, The Texas Co.

RUMORED BLACKMER RESIGNS

CASPER, Wyo., Dec. 27.—It is declared in Denver that H. W. Blackmer, chairman of the board of the Midwest Refining Co., who is in Europe, has resigned. No confirmation was obtainable.

MINING OIL SANDS

New Jersey Company Gets Ranney Patents For Recovery of Oil

NEW YORK, Dec. 30.—The Standard Oil Co. of New Jersey through its subsidiary, the Standard Developments Co., has acquired an interest in the Ranney patents for the recovery of oil from oil sands. The following official announcement was made regarding the transaction:

The Standard Development Co. has completed arrangements by which it secures an interest in the Ranney patents for methods of recovering oil from oil sands. The Standard Development Co. will undertake the prosecution of the Ranney patent applications. The further technical development and licensing of the process will remain under the direction of Mr. Ranney.

The Ranney methods have been developed by Leo J. Ranney, who operates experimental mines for oil recovery at Jacksboro, Tex., which have been visited by many oil men and have created widespread interest. The processes, briefly, are designed to recover oil from sands in old fields already drilled up and comprises sinking a shaft either above or below the pay sand and running short drifts from which short holes are drilled through cap rock into the pay. The interest of the Standard in the process is looked upon as an anchor to windward when the time comes where the price of oil justifies going back after the oil left in the sands after the present methods of development have been completed. Experts estimate that from 25 to 75 per cent of the oil is now unrecovered, depending upon the field, and that on an average probably 50 per cent is unrecovered.

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Late News From the Fields

GULF COAST

In the West Columbia Pool, the Hyde Production Co.'s No. 6 McGregor is bailing at 675 feet. The Humble Oil & Refining Co.'s No. 12 Pipkin Lee is drilling at 900 feet.

In the Goose Creek Pool, the Humble Oil & Refining Co.'s No. 6 Tabb is bailing at 2,010 feet. Same company is deepening No. 47 Smith at 4,180 feet and drilling No. 59 Smith at 4,795 feet with No. 60 at 4,300 feet. The Gulf Production Co.'s No. 21 Wright is below 5,235 feet. No. 8 Chapman-Bryan is at 4,435 feet. No. 17 State land is around 1,900 feet and No. 8-A Tabb at 2,655 feet. No. 5 Houston Smith is at 2,644 feet. No. 18 J. Galliard and No. 10 Tabb fee are rigging with a derrick standing for No. 1 Wright. The Gulf Coast-United Central joint No. 40 Galliard is around 2,800 feet. The Inca Petroleum Co.'s No. 2 Duke is at 2,545 feet and the Hisgen Petroleum Co.'s No. 2 Busch at 4,120 feet.

Southwest Fields

In Jim Hogg County, the Texo Oil Co.'s No. 1 Holdbein set liner and it is flowing 250 bbls. with much gas. The Witherspoon Oil Co. is laying a line from its 2,000-bbl. well to storage in the Aviator Pool in Webb County and meantime is using the 4-inch water line to move oil to storage. The Simms Oil Co.'s No. 1, Survey 84, located 5½ miles west of the Henne, Winch and Fariss wells, took a core of the formation at 2,007 feet, showing oil and gas. Casing is being set at 1,996 feet to drill in and test the sand.

The Magnolia Petroleum Co. is connecting its 8-inch line with its flowing well on the Thompson and will run the oil to storage at Oilton. The Plateau Oil Co. set casing in No. 1 Las Animas and will drill in this week. The Shasta Oil Co.'s No. 1 Holbein, 1 mile north of the discovery well, is bailing at 2,318 feet.

In the Vinton (La.) Pool, the Gulf Refining Co.'s No. 42 Gray, a workover, is pumping 75 bbls. at 2,350 feet.

In Live Oak County, the Houston Oil Co.'s rigs have been shut down on account of frozen water lines. No. 6 Cartwright is now drilling in, with No. 7 drilling and No. 8 rigged.

In Bexar County, the Buckeye Oil Co.'s No. 1 Swearengen is showing gas at 1,880 feet or 200 feet in the Austin chalk. In Medina County, The Texas Co. has taken over the holdings of the Ina Oil Co., south of Hondo, and will drill a test to the Edwards lime. The Ina Oil Co. has eight small pumpers in a shallow sand at 925 feet.

In Guadalupe County, Burnam's No. 1 Battles is showing some gas above the chalk at 2,100 feet. It is southwest from Kingsbury.

Luling Field

On the Caldwell County side of the Luling Field, the United North and South Oil Co.'s No. 7 Gideon is drilling in. Same company is drilling No. 10 Proctor and No. 9 McKean. On the Guadalupe County side, the Magnolia Petroleum Co.'s No. 13 Schubert is at 1,765 feet and No. 14 at 2,100 feet. Ross & Green's No. 1 Phyor is at 1,900 feet. B. F. Smith has started No. 3 in the bed of the San Marcos River.

WORTHAM, TEX.

The Humble Oil & Refining Co.'s first well in the Wortham Field was its No. 1 E. D. Crouch, which got sand at 2,934-90 feet and started at 3,000 bbls. a day, increasing to 4,960 bbls. This well is on the east side of the producing streak.

The production of Wortham on Sunday, December 28, had fallen to 57,434 bbls. a day partly owing to the fact that several big wells were choked down because of salt water showing in two wells. The status of the wells on Sunday was as follows: Atlantic Oil Producing Co. & Penn's No. 1 McCorkle, 3,572 bbls. through 1-inch choker; Boyd Oil Co.'s No. 1 Boyd, 695 bbls., flowing open; Boyd Oil Co.'s four wells on the Simmons farm, 11,191 bbls., three wells choked in; Mrs. J. K. Hughes' No. 1 Simmons, 6,050 bbls., open; Pure Oil Co.'s Nos. 1 and 2 Bounds, 8,822 bbls., open; Kirby Petroleum Co.'s No. 1 Bounds, 4,228 bbls, open; E. L. Smith's No. 1 Beall, 3,299 bbls., open; E. L. Smith's No. 1 Edwards, 1,850 bbls., open one round on master gate, making 16 per cent b.s.; Simms Oil Co.'s No. 1 Calome, 7,420 bbls., open; Simms Oil Co. & Marland Oil Co.'s No. 1 Simmons, 2,300 bbls., open; Strube & Strube's No. 1 Lidley, 3,050 bbls., open; Humble Oil & Refining Co.'s No. 1 E. D. Crouch, 4,957 bbls., open. Total, 16 wells, 57,434 bbls.

The Boyd Oil Co.'s No. 2 Simmons was a disappointment. It started at 2,000 bbls. from sand at 2,897 to 2,957 feet.

The Rio Bravo Oil Co.'s No. 1 on the H. & T. C. right of way got sand at 2,965-3,000 feet and is a 3,000-bbl well.

Production reported Tuesday morning for the preceding 24 hours was given as 62,941 bbls. from 17 wells.

Rain fell on Monday but not enough to help the water situation. Twenty-five per cent of the operations in the field are held up for lack of water.

OKLAHOMA

The Berry Petroleum Co.'s No. 1 McAlester, C SW SW, Section 1-8-8, in the Roxana Pool, in Hughes County, topped sand at 3,417 feet, and started a flow of gas at the rate of 40,000,000 feet. The Southwestern Petroleum Co.'s No. 2 Manley, SE cor. SE, Section 2-8-8, the west offset to the Berry well, got a hole full of water at 3,474-80 feet.

NEW PRESIDENT

W. S. Bilby, newly elected president of the Nebraska Independent Oil Men's Association, is president of the B. & L. Oil Co. of Fairbury, Neb. He has been in

W. S. Bilby

the business more than a score of years and has 25 stations in the central part of the State and is one of the most outstanding independent oil jobbers in Nebraska.

MADE GENERAL MANAGER

W. L. Childs, more familiarly known to the oil industry as "Bert," has acquired a substantial interest in the Reed Roller Bit Co., and has been appointed

W. L. Childs

vice president and general manager, in complete charge of operation, manufacture and sales, effective as of January 1, 1925.

GROSS CRUDE OIL STOCK CHANGES FOR NOVEMBER

Pipe line and tank farm gross domestic crude oil stocks east of the Rocky Mountains decreased 4,156,000 bbls. in the month of November according to returns compiled by the American Petroleum Institute from reports made to it by representative companies. The net change shown by the reporting companies accounts for increases and decreases in general crude oil stocks, including crude oil in transit.

The following is the Institute's summary of the increases or decreases of stocks at refineries covering approximately 62 per cent of the operating capacity of the United States for the month of November:

	Barrels of 42Gals. Increase	Decrease
Domestic crude oil	.....	1,269,168
Foreign crude oil	167,568	.....
Oil for rerunning	.....	116,078
Gasoline	.....	619,292
Kerosene	420,634	.....
Gas and fuel oil	14,436	.....
Lubbricating	.....	75,828
Miscellaneous oils	54,312	.....
Total	656,950	2,080,366
Deduct	.....	656,950
Net decrease	.....	1,423,416

Note—East of the Rockies there was an indicated decreare in gasoline of 886,798 bbls. and west of the Rockies an indicated increased of 267,506 bbls., making a net decrease of 619,292 bbls., for the refineries reporting.

ARKANSAS OIL INVESTMENT

LITTLE ROCK, Ark., Dec. 27.—According to the annual report of Dr. George Branner, State Geologist, about $20,000,000 is invested in oil and gas properties in Arkansas. Only 8.6 per cent of the area of the State remains to be geologically surveyed and 64.4 per cent of this remainder has been partially surveyed. No survey has been made of 14,181 square miles of State land or 27 per cent of the total acreage of State lands.

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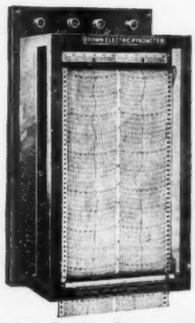

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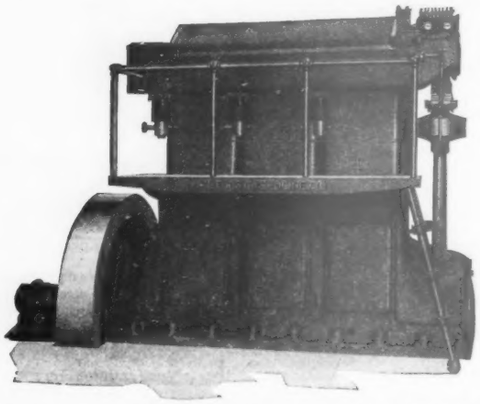

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U. S. OIL RESERVES; LEASING LEGISLATION

(Continued from Page 105)

relating to placer mining." Public petroleum lands had been taken up under the placer law for a number of years before the passage of this act, but in August, 1896, the Secretary of the Interior decided that petroleum lands could not be located and patented under the placer law. The act of February 11, 1897, was the result of this decision.

On September 27, 1909, President Taft withdrew from all form of entry three great areas of public land, two in California and one in Wyoming. The main reasons for the withdrawal of these lands were the prevention of overproduction and the consequent waste of crude oil, the reservation of a supply for the Navy and the preservation of oil lands from disposition under the placer mining law, pending the enactment of legislation by Congress providing for a more satisfactory method of mineral land administration.

Much of the land included in the areas withdrawn was claimed under the placer mining law by various companies and individuals. This led to much litigation. President Taft's right was questioned and in 1910 Congress passed an act specifically authorizing the President to make such withdrawals. Subsequently the Supreme Court held that the President had authority when he issued his order in 1909. Litigation continued, however, for years.

Legislation of 1910

The legislation of 1919 was chiefly designed to protect valid legal claims based upon the actual discovery of crude petroleum and held in compliance with the placer mining law. It was known as the Pickett relief act and was approved by the President on June 25, 1910. Under the provisions of the Pickett Act the President confirmed the prior withdrawals of oil lands in an order dated July 2, 1910. Further relief was granted in an act approved March 2, 1911.

Although the future neds of the United States Navy for fuel oil was one of the reasons for the withdrawls of public oil lands, such was not stated in any of the withdrawal orders prior to 1912, nor was any portion of the lands withdrawn definitely assigned to the Navy at the time of the withdrawal.

In 1912 two naval petroleum reserves were set aside from the withdrawn lands. The area comprised in these two reserves was included within the limits of the land withdrawn on September 27, 1909. The naval reserves, therefore, were not new withdrawals but only the setting aside of certain withdrawn areas for a definite purpose.

Naval Reserve No. 1 was set aside on September 2, 1912, and includes 37,720 acres in the Elk Hills and Midway Fields, located in Kern County, California. Naval Reserve No. 2 was set aside on December 13, 1912. It is located south of and contiguous to Naval Reserve No. 1 and includes 30,080 acres. Much of the land in both naval reserves in California was patented land. These reserves were created by President Taft.

In 1915 President Wilson set apart an area withdrawn from entry in Wyoming comprising about 9,000 acres and this became Naval Reserve No. 3, known as the Teapot Dome Field.

Litigation involving withdrawn lands which remained in the courts for several years following the original order consisted of three classes, namely, suits to enforce the provisions of the withdrawal orders and to protect the property against trespassers, suits to cancel patents which it was alleged had been obtained by fraud, and adverse proceedings in the General Land Office against the granting of patents.

Further Legislation

The necessity for further legislation to cover leasing of public lands was widely recognized, and legislation was pending in Congress for many years, in connection with which there were many public hearings. Finally the mineral land leasing law was enacted in 1920, approved February 25. One of the pertinent features of the act relating to the naval reserves was that the Secretary of the Interior might lease actual producing wells within the naval reserves. Oil was being taken from adjacent areas and it was believed there was more or less drainage. An amendment approved June 4, 1920, gave the Secretary of the Navy power to operate the naval reserves for oil, oil transportation, etc.

In the act of June 4, 1920, Congress provided that "the Secretary of the Navy is directed to take possession of all properties within the naval petroleum reserves as are or may become subject to the control and use by the United States for naval purposes—to conserve, develop, use and operate the same in his discretion, directly or by contract, lease or otherwise, and to use, store, exchange or sell the oil and gas products thereof and those from all royalty oil from lands in naval reserves on behalf of or for the United States."

On May 31, 1921, an executive order was issued by President Harding transferring the administration of the naval reserves from the Secretary of the Navy to the Secretary of the Interior. Acting under the authority of this order, the Secretary of the Interior entered into leases with the Pan-American Petroleum & Transport Co. covering most of Naval Reserve No. 1 in 1921 and 1922 and with the Mammoth Oil Co. covering Naval Reserve No. 3 in 1922.

PERMIT TO DRILL IN FRANCE

By decree of the Minister of Public Works, the Societe Le Petrole de France, with its principal office at 75 Boulevard Haussmann, Paris, has been granted the exclusive right for the duration of two years to prospect for petroleum and natural gas for the territory comprising the communes of Puvoo, Ramous, Baigts, Boronx, Sallos-Mongiscard, Orthez, Sainte-Suzanne et Lannoplaco, the Bussess Pyrences, the communes of Habas and Ossages, Dax and the Landes region, the sectors in each case being defined by articles of the decree published in the Journal Official. It is stipulated that during the period of the permit to prospect the work must be continued throughout by a minimum crew of drillers.

OIL BURNERS IN LONDON

William H. Todd, chairman of the Todd Shipyards Corp., which owns the Todd Oil Burner, Ltd., returning from Europe said: "At our factory outside of London we are operating at a 40 per cent increase in production over last year and for 1925 the outlook is ever better."

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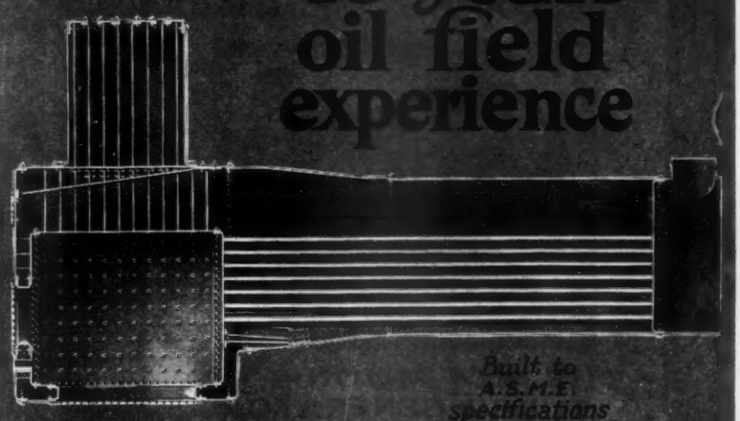

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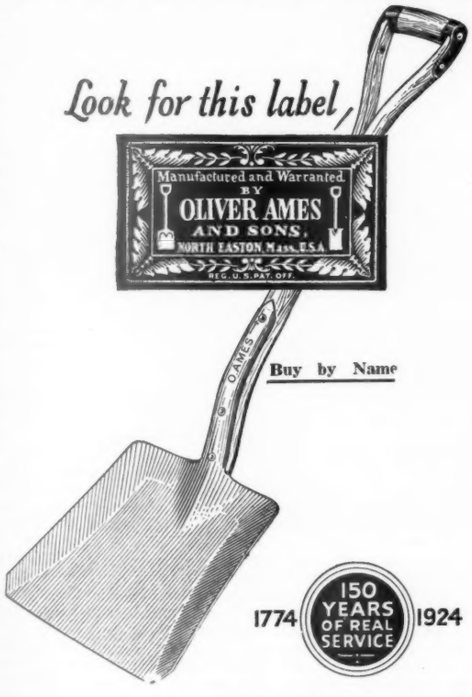

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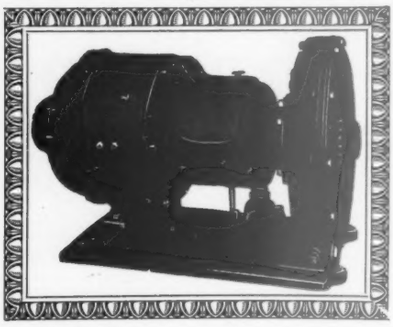

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DOHERTY SATISFIED WITH ACTION TAKEN BY INSTITUTE DIRECTORS

By L. M. Fanning

Henry L. Doherty, president of H. L. Doherty & Co., when seen after the meeting of the American Petroleum Institute in Fort Worth, expressed himself as being entirely satisfied with the action taken by the board of directors in connection with his proposals. The board will meet in Colorado Springs in February to take up the Doherty unit plan of crude oil production and the Doherty proposals for increasing the market for oil products, particularly fuel oil. The maneuvering of Mr. Doherty to get his plan before the institute assembly and to force a formal expression of opinion on the part of the board of directors of that organization was one of the high lights of the recent Fort Worth meeting.

Thomas A. O'Donnell, retiring president of the institute, went on record in his opening remarks as opposing the Doherty plan of development, while Judge Amos L. Beaty, president of The Texas Co., attacked the plan in detail, in what developed to be a direct answer to certain points raised by Mr. Doherty in his Cleveland address in which he asserted that the directors of the institute had not given his plan a fair hearing.

Doherty Explains Plan

"I regard my plan as the best thing I have ever done from an economic and engineering standpoint," Mr. Doherty told the writer on his way East from Fort Worth. "I intend to go out to Colorado Springs with the plan in a very concrete form and to reduce it to the simplest and most understandable form. I am convinced that very few people yet understand it because they will not take the time to study it. If there is one thing my plan is designed to combat it is putting the oil busines in the hands of the Government. I am trying to keep the oil business out of the Government. We now have a great number of State laws affecting petroleum. They are published and make up a big volume. Many of these are onerous, many are ineffective and they all lack uniformity. The petroleum industry has been able to combat much State legislation fairly successfully but the tendency is for more and more and a wave of Federal and State legislation affecting petroleum is liable to sweep the country. My proposal is for the Federal Government to act under its defense powers and to pass one law which will wipe out the many ineffective State laws now in existence. My plan does not interfere with the free operation of the petroleum industry. The Government can only act, it is well noted, when the question of conservation is concerned. The only chance of State interference would be when the contractors failed to agree on the plan for drilling of the ouster adjacent strip of adjoining exploration districts, whereupon the State engineer would either pass on the plan of one or the other contracting parties, or on a modified plan based on their suggestions, or put forward his own plan."

Would Slow Down Production

Mr. Doherty said that the present overproduction situation is not confined to excessive stocks but that actually current production is running too high. He said the industry could stand a reduction of 165,000 bbls. of crude daily and that such a decline would bring about a healthy conditions in this industry. Mr. Doherty's plan provides that no one should be allowed to drill for oil without first receiving a State permit to do so, that nobody would be given a permit to drill for oil until an exploration district had been established, that the exploration for oil should be restricted to that part of the exploration district one-half mile inward from the outer boundaries, that the strip of one-half mile within the outer boundaries of the district should not be drilled for a period of one year after oil and gas had been found in commercial quantities or sooner but not until the exploration district had been enlarged or another district had been established adjacent to it and that royalties should be paid to the trustees of the district, they to settle with the individual land holders according to the calculated amount of oil or gas underlying each man's land. He said in connection with the present production conditions and the operation of the plan, that he believed while the plan was going into effect it would bring about a correction of the present overproduction. There would automatically be a check to drilling operations, he pointed out, while necessary permits to drill were being obtained and the investigations and machinery of the plan were being put into effect.

Doubt Favorable Action

Other prominent directors of the institute who were asked to comment on the prospects of favorable action for the Doherty plan at the Colorado Springs meeting frankly expressed their doubt that Mr. Doherty could expect favorable action. Contrary to Mr. Doherty's contention that his plan has not received a hearing, they point out that the committee on stabilization which functioned a year or so ago had ample opportunity to thresh opt this plan as then developed as well as others presented by other active on the committee. Judge Beaty in his Forth Worth address stated that he served as chairman of the committee and that members of the committee considered the Doherty plan and found themselves unable to concur in it. While Mr. Doherty did not venture a prediction as to what action the directors may see fit to take in February, he did indicate that he expected to get some converts to his plan.

Utilization Program

As regards his utilization program which will also come up for further consideration at the Colorado Springs meeting, Mr. Doherty is optimistic as to possible results. He pointed out the growth of interest in the oil-for-house-heating sessions of the institute and recalled his efforts to interest the industry in this phase of stimulated sales. Since his initial efforts, he said there were now many companies, which originally frowned on the idea, actively pushing furnace oil business and many leading men in the oil business advocating this business as a logical outlet for a surplus product. According to Mr. Doherty's Cleveland statement he endeavored to obtain an appropriation of $100,000 per year for the work of the utilization committee of the institute but that finally $25,000 was decided upon. The utilization committee, according to Mr. Doherty, has not functioned as he felt it would be a mistake to go ahead unless permitted to undertake a campaign on a broad scale. Mr. Doherty now believes it is entirely likely that the directors will be willing to appropriate larger funds and actively sponsor a broad utilization program.

Commend Teagle's Address

Mr. Doherty, as well as many others among the industry's leaders present at the Fort Worth meeting, spoke of the paper presented by Walter C. Teagle, president of the Standard Oil Co. (New Jersey) on "Overproduction: Its Causes and Effects," as probably the ablest paper ever read at an institute meeting. While he believed Mr. Teagle probably said a little more than he should have from the standpoint of the credit of the industry, he expressed his concurrence with Mr. Teagle's views. He pointed out that Mr. Teagle had estimated over 228,000,000 bbls. of fuel oil, representing 60 per cent of a total of 382,000,000 bbls. of fuel oil sold, which in turn represented 52 per cent of the total consumption of all products, were being sold otherwise than in direct competition with coal and that, in other words, this fairly represented the quantity of oil available above that which the markets can absorb on a profitable basis. It is of the greatest importance to the industry, he said, that a profitable market be stimulated for

(Continued on Page 135)

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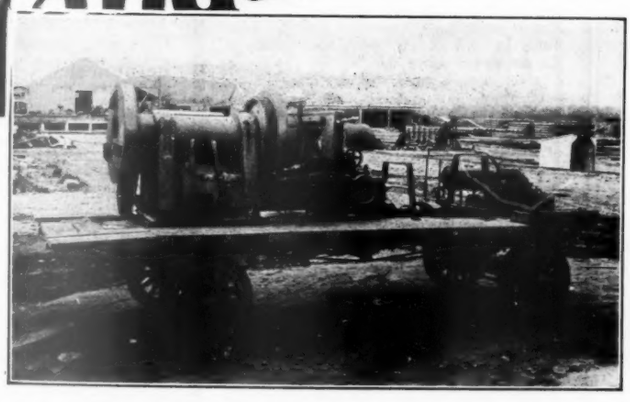

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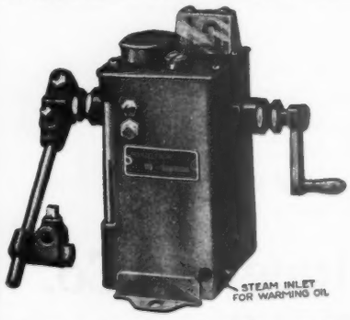

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FLUID RECOVERY FROM OIL AND GAS WELLS

(Continued from Page 24)

liquids and gases in unequal degree. The fluid which is adsorbed to a greater degree will displace another which is adsorbed to a less degree. We speak, then, of the preferential adsorption properties which the various solid substances possess.

Many solids adsorb certain liquids to a greater degree than they do gases. The liquid is then said to wet the surface of the solid. A surface which prefers water to oil will give up the one for the other.

Adsorption is due to the adhesion of molecules. A film of the fluid becomes attached to the surface and such fluid composing the film displays physical and chemical properties which differ from those of the same fluid in the free state.

The distinction between adsorption and absorption may be illustrated by the following: A good grade of charcoal "absorbs" ammonia gas to an amount several hundred times its volue. The surface exposed in charcoal is very great, owing to its porosity and the molecules of carbon making up this surface "adsorb" the gas. We may form some idea as to how dense the gas is which makes up the film, compared with its ordinary density in the free state.

Density and Specific Gravity

110. The density of matter is defined as its mass per unit volume. Gases alter their density very readily, whereas liquids do not do so. (Article 21).

The ratio between the mass of a given volume of substance and the mass of an equal volume of water is the specific gravity of that substance. Inasmuch as the density of water alters with a change in temperature, water of a definite temperature is used as a standard of comparison.

Surface Tension

111. All liquids present definite free surfaces: this free surface is the characteristic by which a liquid is recognized. The surface may be one as between a liquid and a gas, or as between two immiscible liquids.

This free surface behaves somewhat like a stretched elastic membrane. Let a straight line be imagined drawn on the surface, then the portions on opposite sides are pulled away from each other with a force which is defined as the surface tension. This tension may be expressed numerically in units of force per unit of length.

When the free surface is confined to an area of very small dimensions, this surface tension force, combined with the forces of adsorption between the substance confining the surface and the two fluids in contact at the surface, produce the phenomenon known as capillarity. If a given liquid wets, by preference, the surface of, say, a glass capillary tube, such liquid will run up the tube against the force of gravity. This it does in spite of its density or specific gravity. A liquid which does not wet the surface will run down the tube against the pressure of the remaining fluid; a pressure which is exerted at the bottom opening of the tube.

Obviously, the two causal forces have a component which is directed vertically and this component is only balanced by the action of gravity pull on the column of liquid above the general surface in the case of wetting, and the differential pressure at the bottom of the tube in the case of nonwetting; the latter itself, of coarse, is due to gravity.

112. Thus we see that surface tension is a force acting tangentially to the free surface of all liquids no matter what the dimensions of such a surface may happen to be. Capillarity is not a force;—it is a phenomenon partially due to surface tension and is confined to very small surface areas. Capillarity is accompanied by a component of forces which is only offset by another force, equal in magnitude and opposite in direction. These balance forces are perpendicular to the forces of surface tension.

Properties of Matter

113. The subject of Properties of Matter is a very extensive one. We can only attempt here to touch upon the main features which have direct bearing upon the movement of fluid in ander-

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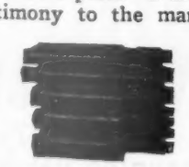

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ground reservoirs. It is impossible to deny the influence of many other factors which characterize the various substances concerned. These at present appear to play only a very minor role, if any, in the mathematics of delivery.

The study of the physical state of the reservoir interior (Article 92) requires us to make a sharp distinction between the phenomena included in, or accompanying, properties of matter Classification of these phenomena is made as follows:

(a) Phenomena which are frictional forces.

(b) Phenomena which serve only as causes of friction.

(c) Phenomena which have no bearing on friction.

We confine our friction to those forces which actually convert mechanical energy into other forms of energy, principally heat. It is that which the physicist terms Kinetic friction. We prefer not to admit his Static Friction as a friction but, instead, speak of the same phenomena under separate heads; namely, cohesion and adhesion of molecules, surface tension, etc. These exist within the reservoir whether the fluid is in motion or not and at no time do they act directly in the conversion of mechanical energy, although they do set up forces which in turn cause such conversion. The action is indirect. This distinction between direct and indirect action is essential because, as we found with capillarity, the direct acting force may be perpendicular to at least one of the indirect forces. Our analysis requires a knowledge of the causes of the forces, their direction of action, and a knowledge of their possible components in the direction of the fluid movement, so that their combined effects in any given reservoir may be determined either in absolute or relative values.

Most properties of matter seem to vary to a greater or less extent under changes of pressure and temperature. Fortunately, this offers no insurmountable difficulties in our analysis.

114. If all reservoir interiors present forces which oppose the movement of fluid to the orifice, what effect will these forces have upon the laws of delivery? Simply this: If the "closed-in" pressure of the reservoir is great enough to overpower their combined effects, the fluid escapes through the orifice according to the same laws whether the reservoir be hollow or filled with a porous medium. This is to say the relation between the various primary functions of delivery are identical for the different kinds of reservoirs. The absolute values of such function as volume and velocity will differ on account of the displacement of fluid by solid matter with the reservoir and internal friction caused thereby, respectively. The relative values, however, which all functions possess at any two instants in the life of a given reservoir do not differ. With sufficient pressure within a given oil or gas bearing formation, wells will belong either to hydraulic or volumetric control. (Article 77 to 88, inclusive.)

But if the closed-in pressure is insufficient to overpower the combined effect of the resisting forces, what then? These opposing forces control the laws of delivery; they hold the upper hand, so to speak, and the well in such a reservoir behaves in a manner entirely distinct. The relations between the various primary functions are not the same for these reservoirs and the preceding ones. Delivery takes place according to the laws of capillary control. (Articles 81 to 85, inclusive.)

Thus we see how important becomes the properties of matter in the study of oil and gas reservoirs. In the form in which these properties are above stated, however, they are not suitable for the purposes of our analysis. The laws of physics place them in the form desired; they construe the properties of matter in a manner appropriate to our needs. In the following articles we are only able to take up those features of the various laws which seem to have the

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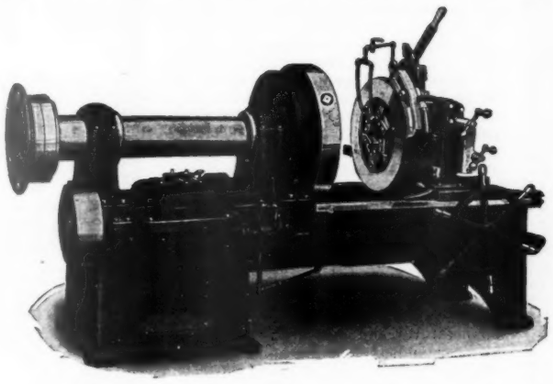

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most important bearing upon fluid delivery.

Avogadro's Law*

115. "At the same temperature and pressure, all gases have the same number of molecules per unit volume." This law has come to be recognized as an important foundation of molecular physics, as well as all chemical investigations.

Figure 115 represents two rigid tanks which are assumed to be absolutely identical in all external conditions, including temparture. Let A be filled with some gas; e. g., nitrogen, and B with oxygen. The law states that when both tanks are brought to the same pressure, they contain an equal number of molecules. The density of these two gases, under these conditions, must have the same ratio as their molecular weights.

The law is strictly true only for perfect gases, although many actual gases adhere to it closely throughout ordinary temperatures and pressures. Instead of nitrogen and oxygen, the tanks might be filled with other pure, or unmixed, gases so far as the theoretical fulfillment of the law is concerned. Each gas may have its own deviation factor within a specified range, when it comes to actual fulfillment of the law.

116. In place of the rigid tanks, suppose we have two identical cylinders which are provided with nonleakable pistons. These are illustrated in Figure 116. Using the same gases as before, when the pistons are in identical positions, and pressures and temperatures equal, then, in accordance with the law, they contain an equal number of molecules. Now move the pistons so that these moleules occupy, say, one-half the space formerly occupied. As soon as equal temperatures are established (provided they became unequal upon compression), the pressures again become equal to each other, though obviously at a higher figure than before. Thus we see that the two gases are equally compressible under isothermal conditions. The same qualifications must be made regarding the theoretic and actual performance in practice. Many other pure gases might have been used instead of the ones chosen.

117. The above experiments pertain to two vessels in each case. We shall now consider the interior of one rigid tank, filled with a pure gas to a given pressure which is to be maintained constant. Assume that the temperature is uniform throughout the tank. We may imagine the contents of this tank divided into columnar sections of equal horizontal area as illustrated in Figure 17. The corners, a, b, c, etc., represent corresponding corners in the interior of the vessel, the cover of which has been supposedly removed without affecting the gas. Let the areas S_1, S_2, S_3, etc., be of finite size. According to Avogadro's law, each of the sections will contain a definite number of molecules and this number will be the same for all sections. Molecules are continually darting across these imaginary partitions. Evidently there are as many entering the section as are leaving it at any given instant; otherwise the gas would never be in the state of equilibrium,—the pressure at one point would be greater or less than that at another point within the same vessel if equilibrium were not continuous.

According to the definition of a perfect gas, its molecules must be such that they do not consist of incompressible solid matter: they are of zero dimensions. If the gas within the tank were perfect, the area of the sections in the figure could be reduced gradually in size until they become of zero dimension and infinite in number; meanwhile the law would still hold true.

Application of Calculus

118. Integration is a process of summation of an infinite number of quantities of zero value each, and such a sum is often finite. (See Principles of Integral Calculus). We shall later have occasion to obtain pressure-volume relations on delivery from reservoirs and we shall resort to the use of integral calculus, basing the operation upon the in-

*Amedeo Avogadro, Italian physicist, 1776-1856. Law dates.

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terior conditions of just such a tank as illustrated in Figure 117.

The methods of calculus, however, can only be applied to cases where the laws of physics hold true to the limiting value of zero. But it was shown above that the perfect gas did submit to this requirement, therefore no reason exists which interferes with the use of calculus in a problem involving such perfect gases.

In practice we deal with actual gases which only approach perfection to a greater or less degree. Can we apply calculus to problems involving these gases? We can do so if the conditions in the limit are not inconsistent with the principles of calculus.

Actual gases consist of molecules which have a cross-section greater than zero area. When S_1, S_2, S_3, etc., become zero, the sections can not include actual molecules which have very small, though finite, dimensions. They can only pierce those which happen to be in line. At some instant, then, it may so happen that the sections do not pierce equal numbers of actual molecules. If they should happen to do so, then only by coincidence would two adjoining sections pierce equal quantities of matter. The assertion can be made, nevertheless, that on the average, during a finite period of time, such areas will pierce the same amount of matter. The length of such period of time depends upon the size and number of actual molecules present. Calculus can be applied to problems involving actual molecules, provided that the function of time receives due consideration,—the time necessary as a basis of an average.

119. In the particular problem mentioned; namely, the pressure-volume relation, we shall find that the question of time may be ignored completely just as was stated in Article 11, where it was shown that certain primary function relations are always independent of time. The pressure-volume relation was one so mentioned there, and it is also such a relation here. If the case were one which did involve time, then calculus may not be applied.

The following conclusion may be stated: By virtue of Avogadro's Law, the processes of Integral Calculus may be applied to conditions within a reservoir involving pressure and volume on delivery, whether the gas be perfect or actual.

Dalton's Law*

120. "The total pressure exerted by a gas mixture on the walls of a vessel is equal to the sum of the pressures which each would exert if present by itself."

Figure 120 illustrates a rigid tank containing two gases, N and O, separated by a thin impervious membrane at a-a. The quantities of the two gases pumped in through the orifices are such that the membrane is a perfectly plane surface. The pressure is uniform throughout the interior of the vessel, at say, C pounds per square inch. Imagine N removed, allowing O to fill the entire tank; its pressure would then be lower, say B pounds per square inch. Reestablish the original conditions and remove O, allowing N to fill the tank. Its pressure is then, say, A pounds per square inch. The law states that:

$$A+B=C$$

This equation may be briefly read as follows: The total pressure is equal to the sum of the partial pressures.

The gases may as well have been placed in the vessel without the membrane; they would have diffused intimately, yet the pressure they exert upon the walls of the tank would have been the same. If N and O represent nitrogen and oxygen, respectively, the resulting mixture would be equivalent to air, provided the proper proportions of the two gases were used.

A sufficient number of membranes may be imagined placed at the positions marked b-b so as to accomodate the individual components of natural gas. (Natural gas is known to be a mixture of many individual hydrocarbon gases). The pressure exerted by all of them is

*John Dalton, English chemist and physicist, 1776-1844.

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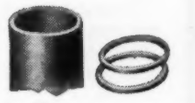

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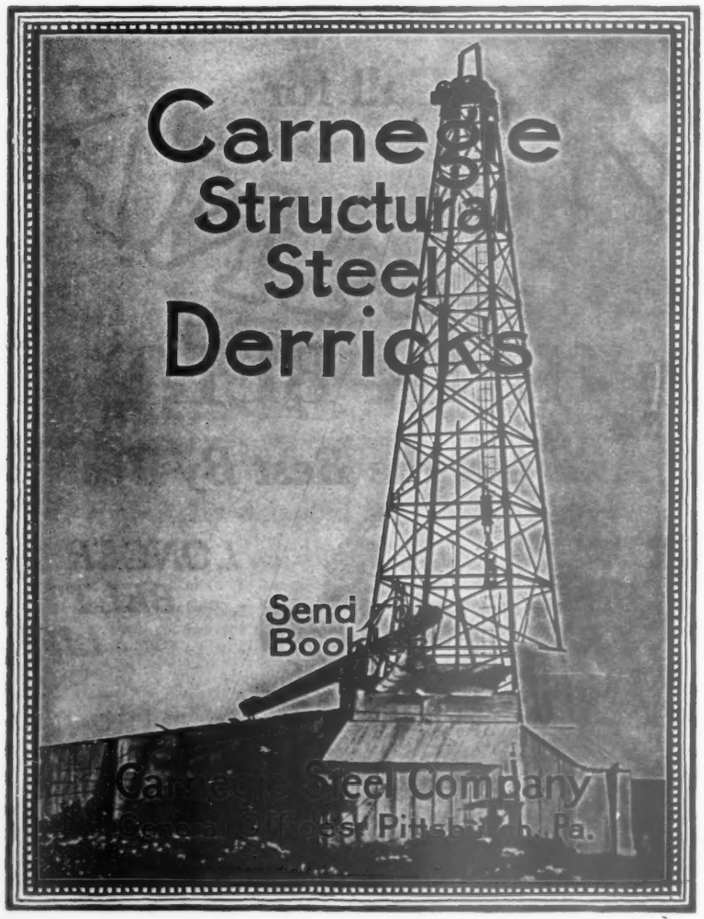

equal to the sum of the individual pressures. The removal of the membrane allows diffusion as before.

121. Dalton's Law holds true for all mixtures, provided chemical action does not take place between them when they are brought into contact.

Our problems concerning reservoirs frequently involve a consideration of the nature of the gas present. By virtue of Dalton's Law, the law of Avogadro is extended to include mixtures of gases. The processes of integral calculus may be applied to conditions when the gases are mixtures.

The next installment continues with the laws of physics.

Oil Region Terms In Common Use But Puzzle Newcomers

The Oil and Gas Journal is constantly called upon to define terms peculiar to the oil and gas business. The terms are common to those familiar with the business, but new blood and new capital are constantly being added to the oil industry and the newcomers appear to be much puzzled by some of the expressions used in describing operations in the field.

This journal has, on several occasions, published a list of oil trade terms, but in answer to a number of inquiries received recently the definitions below are published. They do not cover all the strange lingo used in the fields, but the most important words in the vernacular are made plain to those who are yet students of oil.

The list presented was made up by a leading Tulsa oil man at the request of a noted magazine writer who was preparing a story on oil, that he might more easily understand what oil men meant when they used trade terms.

Anticlinal Nose—A term used only in oil geology to designate a comparatively short and flat anticline.

Anticline—A condition where the rock beds have been arched upward locally from the horizontal position in which they were originally deposited.

B.S.—In the eastern fields b.s. is the field term for so-called rod wax, an emulsion of water and amorphous wax, adhering to sucker rods, "gumming up" the tubing and closing the pores of the sand, requiring occasional cleaning out of wells. Rod wax is a commercial product and is the base of numerous petroleum products, including petrolatum. West of the Mississippi b.s. is an abbreviation for "basic sediment," which is an emulsion of oil and water in a semi solidified condition that must be treated before pipe lines will accept it.

Contour—A convenient method of showing the direction and amount of dip. Every place on a given contour has the same elevation above sea level.

Core—A section of rock taken by a diamond core drill, or by rotary tools, for information only.

Crystalline Rocks—Rocks which were once in a molten condition and which solidified on cooling.

Cut Oil—Oil which is partly emulsified by mixture with water in the presence of gas or air.

Diamond Core Drill—A machine for securing a continuous vertical section of the formation for the purpose of determining local structural conditions.

Dip—The amount by which the planes of the rock layers vary from the horizontal.

Dome—A condition in which the arching upward of the beds is so pronounced that the effect of any regional dip is overcome to a degree that the beds dip downward and sway in all directions from a central point.

Exposure—A place in which the bed rock is at the suurface, i.e. "exposed" to the weather.

Fault—A fracture plane in rock strata along which there has been differential movement.

Fold—A general term including anticlines and domes.

Geologic Surface Map—A map showing the amount and direction of dip of

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the rock strata usually based on elevations suurveyed on various rock ledges outcropping along the streams.

Gravity Baume—A convenient scheme for expressing the relative weights of substances lighter than water. Pure water is given a gravity of 10 degrees.

Monocline—A condition in which the rock layers or strata have been tilted in one direction only. Compare with regional dip.

Oil Field—An oil producing area, the limits of which are usually marked by dry holes or small wells.

Oil Field Geology—That part of the science that has special bearing on conditions providing a source for oil and favoring its accumulation in commercial quantities.

Oil Sand—A sandstone in which the interstices between the sand grains are filled with oil.

Oil Seepage—A place where oil residue is exposed at the surface or from which oil is still escaping, usually due to exposure of an oil sand or to a fault.

Probable Area—The area about a partially developed field which incomplete data indicate will be productive.

Proven Area—The area in a partially developed field within which any location that could be chosen is considered certain to produce.

Pool (Oil)—That part of a sandstone body that is capable of furnishing oil in commercial quantities.

Geological Map of Underground—A map showing amount and direction of dip of the strata, based on data obtained from comparison of well logs, the elevation of the surface at the location of the wells being taken into account.

Regional Dip—The prevailing general dip of the strata covering area measured in tens or hundreds of miles.

Rock Pressure—A term referring to the initial pressure of a gas well. Usually it approximates the pressure exerted by a column of water of a height equal to the depth of the gas sand below the surface.

Sedimentary Beds—Those beds that were originally deposited in water and are characterized by stratification.

Stratigraphy—A term that refers to the rock strata with special reference to their arrangement and succession, the normal position being that with the younger beds lying successively upon the older.

Strike—The direction at right angles to the direction of the maximum dip.

Structure—Technically speaking structure refers to the altitude of beds whether dipping or flat lying, but in oil field terminology it is restricted to a local condition favoring oil accumulation, as an anticlinal dome.

Syncline—The reverse of an anticline, or a condition where the rock layers have been bowed downward from originally horizontal positions.

Terrace—A local flattening of a regional dip.

Wildcat Area—Areas in which the oil possibilities remain to be demonstrated.

Wildcat Territory—See wildcat area.

Wildcat Well—A well drilling in a wildcat area.

Bonus—The consideration in cash or other property paid lessor for a lease. The term bonus, instead of consideration, is applied to the transaction, perhaps for the reason the lessor always reserves royalties.

Depreciation—The waste of assets due to exhaustion, wear and tear, and obsolescence of physical property.

Depletion—The loss sustained through the progressive removal of natural resources, as a mineral deposit. Since there is no recuperation or rehabilitation of oil or gas or other reserves, such reserves are wasting assets from the moment production begins.

Amortization—The exhaustion of an intangible right, such as a lease, by reason of lapse of time.

Tubing—The conduit, usually of metal, through which oil or gas is removed from a well.

Casing—The material, usually metal, used to support and retain the walls of a well.

Line Pipe—The material, usually

(Continued on Page 134)

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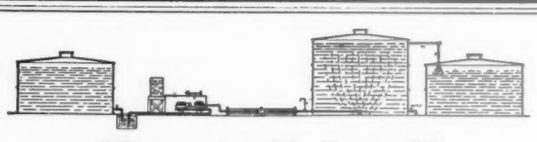

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Tulsa, Oklahoma

Mexican Shipments More in November; Less Than Year Ago

TAMPICO, Mexico, Dec. 27. — Shipments of petroleum from Mexican ports of primary clearance during the month of November totaled 11,155,007 bbls., a decrease from the movement during November, 1923, of 442,920 bbls. Compared with the movement during October of the current year, however, the November movement shows an increase of 1,473,244 bbls., an increase accounted for by Transcontinental Petroleum Co., which exported nearly 1,500,000 bbls. more oil in November than it did during the previous month.

The increase in the volume of the heavier oils of the northern fields in November compared with October is over 2,000,000 bbls., the November movement totaling 6,915,320 bbls. compared with 4,772,695 bbls. during last October.

The movement during the past month, in detail, was as follows:

FROM TAMPICO

By Transcontinental Petroleum Co.

Nov.	Rig	Vessel, Destination—	Bbls.
1	Ss.	Baytown, Baytown	22,649
1	Ss.	Mendocino, Boston	49,079
1	Ss.	Agwisun, New York	51,675
1	Ss.	Baton Rouge, New York	†52,231
3	Ss.	Olna, Baton Rouge	48,256
4	Ss.	L. J. Drake, Baton Rouge	47,268
5	Ss.	H. M. Flagler, Montreal	52,046
5	Ss.	Princeton, Baton Rouge	44,990
8	Ss.	Miskiana, Baltimore	49,291
8	Ss.	Matinicock, Baltimore	56,261
9	Ss.	Halo, New York	46,109
9	Ss.	Livingston Roe, Porto Rico	39,996
9	Ss.	Livingston Roe, Tampa	*15,041
10	Ss.	Baytown, Baytown	23,622
11	Ss.	Durango, New York	47,643
11	Ss.	Somerset, Tampa	43,840
12	Ss.	Olna, Baltimore	46,404
12	Ss.	Niobe, New York	57,837
12	Ss.	Glenpool, Jacksonville	37,568
13	Ss.	L. J. Drake, Antilla y Havana	48,237
13	Ss.	Trontolite, Hamburg	*41,347
15	Ss.	S. B. Hunt, Baton Rouge	55,390
15	Ss.	John Worthington, New York	57,534
15	Ss.	Gedania, New York	66,643
16	Ss.	T. L. Williams, New York	54,369
16	Ss.	F. W. Weller, Baton Rouge	72,883
17	Ss.	W. C. Teagle, New York	60,502
17	Ss.	Topila, Baton Rouge	50,653
17	Ss.	Malabar, New York	60,424
18	Ss.	Halsey, Baltimore	51,605
18	Ss.	Pioneer, Nuevitas, etc.	45,155
18	Ss.	Baytown, Baytown	23,538
18	Ss.	Baltic, Charleston	56,878
19	Ss.	T. H. Wheeler, Mariel, Cuba	50,592
20	Ss.	Aztec, Fall River	44,107
20	Ss.	Imlay, New York	54,869
21	Ss.	Somerset, Key West	46,641
21	Ss.	Walter Jennings, Baytown	71,959
22	Ss.	Dillwyn, Baltimore	54,588
22	Ss.	Ardmore, New York	61,165
22	Ss.	Chas. Pratt, Baton Rouge	74,394
22	Ss.	A. C. Bedford, Baton Rouge	69,698
22	Ss.	District Columbia, Panma	*58,105
23	Ss.	Ball Butte, New York	47,815
23	Ss.	Muskogee, Tampa	54,883
23	Ss.	Ballhill, New York	46,582
24	Sr.	F. Q. Barstow, New York	69,121
25	Ss.	S. B. Hunt, Baton Rouge	57,294
25	Ss.	E. T. Bedford, Baton Rouge	75,786
26	Ss.	Livingston Roe, New York	60,293
26	Ss.	Topila, Baytown	50,903
26	Ss.	Glenpool, Jacksonville	40,693
29	Ss.	Bostwick, New York	61,257
30	Ss.	Argon, New York	54,890
		Lighterage (U. S. A.)	67,771
		Bunker deliveries	98,383
		Total	2,938,733

By Hunsteca Petroleum Co.
(Mexican Petroleum)

Nov.	Rig	Vessel, Destination—	Bbls.
1	Ss.	Norman Bridge, New Orleans	*40,407
2	Ss.	Nora, Providence	*76,570
4	Ss.	C. Anderson, New Orleans	†66,086
4	Ss.	C. A. Canfield, New York	*60,010
4	Ss.	J. O. Boyd, New Orleans	†18,583
5	Ss.	Mexoil, Miami	*14,718
5	Ss.	Fred. Ewing, Galveston	*51,653
6	Ss.	Mantilla, Providence	*50,645
7	Ss.	Panoil, Miami	*14,133
9	Ss.	F. R. Kellogg, Boston	*61,288
10	Ss.	W. H. Doheny, New York	*63,223
12	Ss.	Dean Emery, New Orleans	*53,810
13	Ss.	C. Anderson, New Orleans	†67,457
13	Ss.	Harold Walker, Philadelphia	62,398
13	Ss.	Fred. Ewing, Galveston	*52,317
15	Ss.	G. G. Henry, New York	*62,091
15	Ss.	S. M. Spalding, Portland	*64,767
15	Ss.	O. D. Bennett, New Orleans	†52,317
16	Ss.	Fueloil, Houston	*14,182
16	Ss.	Cerro Azul, Rio & Santos	*74,643
16	Ss.	J. M. Danziger, New Orleans	*56,689
18	Ss.	F. K. Lane, Boston	*61,862
18	Ss.	Cerro Ebano, Providence	*80,550
18	Ss.	Wm. Green, Boston	*65,800
19	Ss.	Elisha Walker, New York	*66,056
20	Ss.	Montana, New York	*63,574
20	Ss.	Meline, Portland	*62,351
21	Ss.	G. W. Barnes, New Orleans	†68,788
21	Ss.	P. H. Harwood, New York	*66,491
21	Ss.	J. O. Boyd, New Orleans	†19,017
22	Ss.	Fred. Ewing, Galveston	*65,524
22	Ss.	Norman Bridge, Port Tarafa, Cuba	*41,083
22	Ss.	Mexoil, Miami	*14,824
23	Ss.	E. L. Doheny, New Orleans	*52,691
23	Ss.	H. G. Wylie, Jacksonville	*41,136
26	Ss.	C. A. Canfield, Providence	*51,924
27	Ss.	Dean Emery, Amsterdam	56,085

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30	Ss.	Fueloil, Jacksonville	*13,923
30	Ss.	Panoil, Miami	*14,571
		Bunker deliveries	138,182
		Total	2,246,215

By Mexican Eagle Oil Co., Ltd.

Nov. Rig		Vessel, Destination—	Bbls.
2	Ss.	San Lorenzo, Buenos Aires, etc.	†71,647
2	Ss.	La Crescenta, Las Palmas	*43,884
4	Ss.	San Teodoro, Buenos Aires	†59,878
4	Ss.	San Fraterno, B. Aires y Mont.	*71,106
8	Ss.	Corning, Vado	*36,655
9	Ss.	San Manuel, Lizard f/o	*43,464
10	Ss.	San Gregorio, Devonport	*70,094
11	Ss.	Ansaldo III, Marseilles	*31,396
11	Ss.	San Salvador, Lizard f/o	*31,587
12	Ss.	Akera, Hamburg	*38,339
14	Ss.	San Macedonio, Lizard f/o	*43,687
18	Ss.	San Patricio, B. Aires y Santos	*70,612
19	Ss.	San Eduardo, Glasgow	*34,006
20	Ss.	Acasta, Trieste	*21,668
20	Ss.	Acasta, Malta	*20,336
20	Ss.	Leise Maersk, Bahia Blanca, etc.	†14,521
21	Ss.	San Joaquin, Hamburg	*59,264
23	Ss.	Lampas, Marseilles	*42,217
26	Ss.	San Melito, B. Aires y Montevideo	*83,031
27	Ss.	San Leon, Havana	*47,092
27	Ss.	San Zotico, New York	*48,918
30	Ss.	San Jeronimo, Devonport	*81,830
		Coastwise deliveries (P.M.)	72,377
		Coastwise deliveries (V.C.)	*34,294
		Coastwise deliveries (V.C.)	†18,030
		Bunker deliveries	78,573
		Total	1,268,505

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Nov. Rig		Vessel, Destination—	Bbls.
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3	Ss.	Scott, Musician, Holland	42,816
3	Ss.	Caloria, New Orleans	37,208
4	Ss.	Scott, Standard, London	41,389
7	Ss.	Antietam, Philadelphia	70,780
7	Ss.	British Light, London	42,820
9	Ss.	Corbia, New York	*43,211
12	Ss.	Agwimars, Philadelphia	51,377
12	Ss.	Belridge, New Orleans	50,619
13	Ss.	Absin, Gibraltar	*42,322
14	Ss.	Solana, Philadelphia	57,669
15	Ss.	Caloria, New York	37,769
17	Ss.	Anomia, Las Palmas	*42,927
18	Ss.	Hampton Roads, Philadelphia	54,278
19	Ss.	Maricopa, Bayonne	51,415
22	Ss.	Scott, American, Holland	52,312
27	Ss.	Marimula, New Orleans	74,242
29	Ss.	Vaarli, New York	50,637
30	Ss.	Limicana, New Orleans	17,152
		Coastwise deliveries	142,992
		Lighterage: (Europe, 22,000; U. S. A., 30,999)	52,999
		Bunker deliveries	3,251
		Total	1,111,361

By Mexican Sinclair Petroleum Corp.

Nov. Rig		Vessel, Destination—	Bbls.
3	Ss.	Madrono, Cienfuegos	50,838
4	Ss.	S. L. Fuller, New Orleans	73,583
7	Ss.	E. V. R. Thayer, Texas City	69,584
7	Ss.	J. M. Cudahy, New Orleans	66,770
9	Ss.	Harry Farnum, Puerto Barrios, C. A.	31,055
12	Ss.	A. E. Watts, Cienfuegos	67,324
12	Ss.	E. W. Sinclair, New Orleans	44,429
14	Ss.	S. L. Fuller, New York	70,340
15	Ss.	Gene Crawley, New Orleans	29,455
16	Ss.	Mirita, Belic, Cuba	56,344
18	Ss.	E. V. R. Thayer, New Orleans	69,927
21	Ss.	Madrono, Tiverton	36,195
21	Ss.	J. F. Farrell, Nuwitas	72,023
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27	Ss.	E. V. R. Thayer, New Orleans	58,105
27	Ss.	A. E. Watts, Matanzas	70,712
29	Ss.	Harry Farnum, Puerto Castilla, C. A.	31,112
29	Ss.	Mirita, Cienfuegos	53,308
		Bunker deliveries	4,295
		Total	1,081,231

By Mexican Gulf Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
5	Ss.	J. M. Guffey, Savannah	18,079
6	Ss.	Winifred, Tampa	18,034
7	Ss.	Gulfoil, Port Arthur	45,792
9	Ss.	Gulftrade, Galveston	54,802
13	Ss.	Gulfstar, Port Arthur	60,528
18	Ss.	Gulfpoint, Galveston	55,369
19	Ss.	Winifred, Tampa	17,658
21	Ss.	J. M. Guffey, Savannah	18,892
25	Ss.	Gulfstate, Galveston	54,092
		Bunker deliveries	14,176
		Lighterage: (U. S. A.)	29,562
		Total	386,984

By International Petroleum Co.

Nov. Rig		Vessel, Destination—	Bbls.
5	Ss.	Texas, Port Arthur	47,388
11	Ss.	Agwiworld, Fall River	53,223
12	Ss.	Derbyline, Providence	48,053
17	Ss.	Swifteagle, Texas City	59,846
22	Ss.	Dora, Fall River	43,649
		Bunker deliveries	3,399
		Total	255,558

By East Coast Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
6	Ss.	Tamiahua, Galveston	69,354
13	Ss.	Tamiahua, New Orleans	69,310
22	Ss.	Tamiahua, Galveston	74,447
		Bunker deliveries	15,924
		Total	229,035

By Empire Gas & Fuel Co.

Nov. Rig		Vessel, Destination—	Bbls.
10	Ss.	Scott, Minstrel, Baltimore	46,659
11	Ss.	Torres, Philadelphia	48,545
14	Ss.	Cedarhurst, Fall River	40,990
18	Ss.	Swiftsure, Texas City	47,973
		Total	184,167

By The Texas Co.

Nov. Rig		Vessel, Destination—	Bbls.
14	Ss.	Virginia, Port Neches	46,607
19	Ss.	Louisiana, Mantanza, etc.	25,337
20	Ss.	Georgia, Port Neches	47,523

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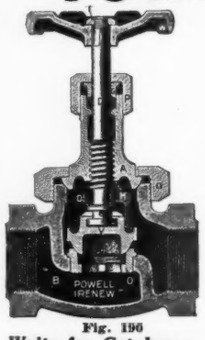

Fig. 190

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30	Ss.	Texas, Providence	*50,845
		Bunker deliveries	11,679
		Total	181,991

By Mexican Atlas Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
12	Ss.	Golaa, New York	42,320
22	Ss.	F-Sulphur 6, Texas City	40,687
26	Ss.	Caloria, Chaparra, Cuba	37,344
29	Ss.	Sucrosa, Baltimore	46,596
		Bunker deliveries	4,722
		Total	171,669

By New England Fuel Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
4	Ss.	Clement Smith, Baltimore	50,333
14	Ss.	Eurana, Tocopilla	50,702
		Total	101,035

By Fanuco Boston Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
27	Ss.	Clement Smith, Philadelphia	57,534

By Interocean Oil Co.

Nov. Rig		Vessel, Destination—	Bbls.
30	Ss.	F-Sulphur 6, Baltimore	37,199

By Pierce Oil Corp.

Nov. Rig		Vessel, Destination—	Bbls.
26	Ss.	Potomac, Manchester	30,660
		Bunker deliveries	183
		Total	30,843

FROM PORT LOBOS

By Transcontinental Petroleum Co.

Nov. Rig		Vessel, Destination—	Bbls.
1	Ss.	Ballhill, Baltimore	22,874
1	Ss.	Imlay, New York	20,267
3	Ss.	Agwisun, New York	19,493
5	Ss.	Clement Smith, Baltimore	22,212
7	Ss.	H. M. Flagler, Montreal	22,753
13	Ss.	Niobe, New York	13,459
14	Ss.	Olna, Baltimore	15,215
		Total	136,273

By Island Oil & Transport Corp.

Nov. Rig		Vessel, Destination—	Bbls.
1	Ss.	Dillwyn, Baltimore	69,909

By International Petroleum Co.

November Coastwise deliveries (P. M.)			68,785

FROM TUXPAM

By Mexican Eagle Oil Co., Ltd.

Nov. Rig		Vessel, Destination—	Bbls.
1	Ss.	Crenatula, Holland	*7,110
2	Ss.	Conia, Naples	*3,812
3	Ss.	San Lorenzo, Montevideo	*26,744
4	Ss.	Crescenta, Las Palmas	*10,297
6	Ss.	San Fraterno, Buenos Aires	*25,734
10	Ss.	Corbis, New York	*7,168
11	Ss.	San Manuel, Lizard f/o	*1,326
12	Ss.	San Gregorio, Devonport	*29,803
13	Ss.	Ansaldo III, Marseilles	*6,567
15	Ss.	Absia, Gibralta f/o	*2,961
16	Ss.	Akera, Hamburg	*5,988
16	Ss.	San Macedonio, Lizard f/o	*1,227
17	Ss.	Gedania, New York	24,205
18	Ss.	Anomia, Las Palmas	*2,645
20	Ss.	San Patricio, Buenos Aires	*22,551
22	Ss.	Baltic, Charleston	34,858
27	Ss.	Lampas, Marseilles	6,894
28	Ss.	San Melito, Buenos Aires	*18,483
29	Ss.	San Zotico, New York	*2,053
29	Ss.	San Leon, Havana	*12,036
		Coastwise deliveries	†13,564
		Bunker deliveries	164,085
		Total	430,111

By Penn Mex Fuel Co.

November Coastwise deliveries (P. M.)			167,869

NOVEMBER SUMMARY

From—	Bbls.
Tampico	10,282,060
Port Lobos	274,967
Tuxpam	597,980
Total November, 1924	11,155,007
Total November, 1923	11,597,927
Decrease November, 1924	442,920

DIVISION OF MOVEMENT

To—	Bbls.
United States	7,546,545
Cuba	677,425
South America	589,652
Continent	519,753
Mexican Coastwise	517,911
United Kingdom	451,893
Azores	99,753
Canada	74,799
Central America	62,167
Panama	58,105
Mediterranean Ports	20,335
Bunkers (to balance)	536,669
Total	11,155,007

CLASSES

Crudes	7,020,205
Topped crudes	3,044,252
Distillates	553,881
Bunkers (to balance)	536,669
Total	11,155,007

*Denotes topped crudes.
†Denotes distillates.

OIL REGION TERMS PUZZLE NEWCOMERS

(Continued from Page 131)

metal, through which oil, gas or water is conveyed from place to place.

Casinghead Gas—The wet gas associated with crude oil underground, recovered at the mouth of the well, which issues from the well between the area of the tubing and the inner string of well casing.

Casinghead Gasoline—The liquid hydrocarbon extracted from casinghead gas by one of three methods—compression, absorption or refrigeration.

Natural Gas—The volatile hydrocarbon issuing from a well which does not also produce oil.

Pumper—A workman who operates an oil well, also an oil producing well which does not flow its production.

Shot—A charge of high explosive, usually nitroglycerin, deposited in the perforation of an oil sand to shatter the

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sand and to expedite the flow of oil.

Shooter—A skilled workman who "runs" into an oil well a charge of nitroglycerin and causes it to be exploded.

Drilling—The method of digging or sinking a hole in the ground for the purpose of recovering liquid minerals.

Cable Tools—The apparatus used to drill a well by the percussion method. Aside from the motive power, the apparatus consists of a bit, stem and a wire or cord line to elevate and drop the tools.

Rotary Outfit—The apparatus by which a well is sunk by rotating a cutting bit attached to a stem.

Flowing Oil Well—A well producing liquid hydrocarbon without the use of artificial means, the expulsive forces consisting of rock pressure and gas pressure.

Gusher—A flowing oil well. The term is rarely used by practical oil men. It is used almost exclusively by promoters and stock jobbers.

Lease Power—A power plant upon an oil producing property which operates one or more oil producing wells. At each well is a pumping jack connected by means of shackle line or rod line to an eccentric, attached to a band wheel, revolved by motive power.

Rig—The superstructure for constructing a well. The cable tools or rotary outfit are operated through the agency of the rig.

Lease—A legal document executed between the land owner as lessor, and another party as lessee, granting the right to exploit the premises for mineral or other products.

Leasehold—The legal estate in land granted by lessor in favor of lessee.

Working Interest—The share or portion of the minerals obtained by and belonging to the lessee.

Royalty Interest—The share of minerals reserved, free of expense, to the lessor.

READ THE
Classified Wants
Pages 98-99
DO IT NOW
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Oil Field Scout—A workman whose duty consists principally of noting the location, construction and result of drilling wells; the production of operated leases; movement of crude oil; leasing and other activities of operators.

Mid-Continent Field—The trade term used to describe an oil region embracing all of Kansas, all of Oklahoma, all of Arkansas, the north portion of Louisiana, and the north and central portion of Texas.

Rental—The consideration, usually paid in periodical installments by the lessee to the lessor, to keep alive the lessee's lease. In the usual lease, the obligation to pay rental ceases when oil or gas in commercial quantities is developed.

Paying Well—A well which yields oil or gas in commercial quantities; that is to say, in quantities reasonably calculated eventually to return to the owner the cost of the well, plus the expense of operating it.

DOHERTY IS SATISFIED WITH INSTITUTE ACTION

(Continued from Page 122)

this surplus. Mr. Doherty referred to Mr. Teagle's remarks in which he said no one could tell how far-reaching will be the trend toward the displacement of coal for household use by furnace oil and that in addition to this big field there were other ways of establishing fuel oil on a higher market plane.

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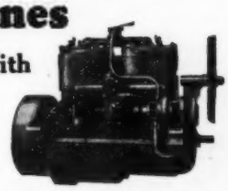

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE REPORT FOR OCTOBER

Runs

	Month	Dy. Av.
*Prairie P. L. Co.	3,410,000	110,000
Gulf P. L. Co.	1,057,356	34,108
Texas P. L. Co.	482,473	15,564
Magnolia Pet. Co.	1,296,278	41,815
Empire P. L. Co.	858,555	27,695
Cosden P. L. Co.	780,226	25,169
*Sinclair P. L. Co.	1,688,477	54,467
*Other lines	9,052,000	292,000
Total October	18,625,365	600,818
Total September	18,667,071	622,235
Difference	31,706	21,417

Shipments

†Prairie P. L. Co.	3,239,593	104,503
Gulf P. L. Co.	1,119,591	36,116
Texas P. L. Co.	906,597	29,245
Magnolia Pet. Co.	1,170,086	37,745
Empire P. L. Co.	903,016	29,130
Cosden P. L. Co.	840,177	27,102
†Sinclair P. L. Co.	2,261,056	72,615
*Other lines	8,866,000	286,000
Total October	19,296,116	622,456
Total September	17,949,510	598,317
Difference	1,246,606	14,139

Stocks

*Prairie Oil & Gas Co.	26,600,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line Co. and Gypsy Oil Co.	9,707,279
The Texas Co.	5,887,648
Magnolia Petroleum Co.	9,489,606
Empire Pipe Line Co.	3,118,795
Cosden Pipe Line Co.	2,895,796
*Sinclair Crude Oil Purchasing Co.	29,350,000
Carter Oil Co.	17,774,386
*Other lines	10,600,000
Total October	117,423,510
Total September	117,616,834
Difference	193,324

*Estimated.
†Prairie Pipe Line shipments include shipments of Texas crude oil. Sinclair Pipe Line shipments include Texas and Wyoming
Note: Stocks do not include approximately 9,000,000 bbls. of crude oil held in storage on private tank farms and leases.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November.

	Oct. '24	Nov. '24
Nat. Transit	199,575.25	156,466.95
S. W. Pa. P. L.	90,883.89	76,738.81
Eureka P. L.	396,959.58	313,985.41
Buckeye P. L. (Macksburg)	288,639.76	249,515.67
Buckeye P. L. (Cleveland)	15,068.52	12,628.22
Buckeye P. L. (Lima, etc.)	145,493.29	110,392.18
Indiana P. L.	13,732.04	9,906.55
Cumberland P. L.	353,376.22	317,529.60
N. Y. Transit	19,341.15	15,690.46
Tidewater P. L.	145,975.11	114,304.20
Pure Oil P. L.	193,849.91	173,772.14
Emery P. L.	43,225.22	37,435.54
Indian Ref.	62,081.48	48,956.23
Paragon Dev.	37,082.21	38,440.19
Pittsburgh P. L.	8,975.04	6,584.73
Riggs		7,103.24
Total	2,014,258.67	1,698,450.12
Daily average	64,976.08	56,281.67

Note—Indian Refining Co. also reported other receipts of 378,319.61 bbls. Paragon Refining Co. had other receipts of 110,767.16 bbls. Paragon Development Co. had other receipts of 3,790.55 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November.

	Oct. '24	Nov. '24
Nat. Transit	316,814.05	328,195.08
S. W. Pa. P. L.	314,267.16	76,738.81
Eureka P. L.	172,363.77	133,437.43
Buckeye P. L. (Macksburg)	100,388.72	79,776.94
Buckeye P. L. (Cleveland)	1,402.46	1,212.94
Buckeye P. L. (Lima, etc.)	400,601.18	605,811.51
Indiana P. L.	775,858.48	906,678.87
Cumberland P. L.	121,292.74	123,095.54
N. Y. Transit	521,646.52	770,271.02
Northern P. L.	136,838.32	128,548.45
Tidewater P. L.	156,746.09	116,150.08
Pure Oil P. L.	144,366.46	135,576.29
Emery P. L.	42,307.10	34,849.05
Paragon Ref.	93,965.35	110,767.16
Indian Ref.	477,162.81	450,627.79
Paragon Dev.	31,059.70	38,440.19
Pittsburgh P. L.	11,164.71	8,621.26
Riggs		2,314.39
Total	3,818,263.62	4,272,010.39
Daily average	123,169.79	26,817.37

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of October and November were as follows:

	Oct. 24	Nov. '24
Nat. Transit	1,058,840.27	1,022,658.64
S. W. Pa. P. L.	699,936.45	663,131.46
Eureka P. L.	1,884,227.94	133,437.43
Buckeye P. L. (Macksburg)	407,451.51	395,669.54
Buckeye P. L. (Cleveland)	53,051.25	65,129.15
Buckeye P. L. (Lima, etc.)	4,474,343.57	4,372,559.45
Indiana P. L.	643,838.15	601,629.59
Cumberland P. L.	623,817.30	617,906.57
Southern P. L.	454,510.60	476,795.57
Crescent P. L.	58,247.53	58,213.43
N. Y. Transit	799,719.98	711,774.78
Northern P. L.	863,572.00	679,449.45
Pure Oil P. L.	371,999.94	404,853.15
Emery P. L.	7,444.98	9,770.82
Paragon Ref.	90,298.77	102,333.48
Indian Ref.	157,931.51	135,869.56
Paragon Dev.	8,649.08	9,416.32
Pittsburgh P. L.	6,180.23	4,168.88
Riggs		765.27
Total	12,664,061.12	12,268,529.76
Increase	457,225.25	
Decrease		395,531.36

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of October and November, showing the gross stocks of the above fields:

	Oct. 24	Nov. '24
Pennsylvania	3,930,646.58	3,906,769.11
Lima	1,326,652.80	1,330,142.27
Kentucky	1,482,174.97	1,569,619.78
Mid-Continent	5,808,670.66	5,359,367.61
Illinois	115,916.11	102,630.99
Total	12,664,061.12	12,268,529.76

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1921	1922	1923	1924
January	64,460	67,702	75,790	62,638
February	70,054	75,096	71,093	68,028
March	68,555	78,531	76,592	68,721
April	65,036	75,406	75,614	71,058
May	65,466	77,592	77,365	63,942
June	62,438	76,193	77,593	63,230
July	59,486	76,435	71,879	64,208
August	64,888	79,387	76,910	59,942
September	60,110	78,512	72,358	62,930
October	57,688	77,209	76,356	64,976
November	58,470	75,313	70,762	56,282
December	61,000	73,351	69,271	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for past four years:

	1921	1922	1923	1924
January	115,550	119,792	171,067	145,518
February	76,736	111,362	164,219	148,732
March	84,168	127,753	185,487	147,098
April	101,015	127,068	170,751	147,611
May	100,253	127,840	177,102	134,997
June	105,037	137,638	173,598	143,010
July	97,096	137,782	168,330	124,187
August	101,652	153,275	142,766	123,120
September	117,440	158,761	137,266	127,325
October	106,728	165,346	134,597	123,170
November	121,803	165,677	131,426	124,400
December	104,023	172,861	139,909	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1922	1923	1924
January	16,297,858	14,040,567	12,907,203
February	17,009,293	14,028,437	11,844,960
March	16,877,937	13,873,146	10,906,783
April	16,777,842	13,737,575	10,922,742
May	16,948,962	13,816,622	11,335,307
June	16,810,169	14,541,253	11,544,206
July	16,660,286	14,645,584	12,062,261
August	16,235,229	14,770,539	12,221,676
September	16,228,545	14,803,444	12,306,338
October	15,757,746	14,504,111	12,664,061
November	15,171,972	14,157,726	
December	14,323,765	13,444,361	

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1923—	Receipts	Shipments	Stocks
November	2,980.66	4,150.98	16,154.47
December	2,893.07	3,489.27	15,548.27
1924—			
January	2,942.19	8,641.71	9,848.75
February	2,151.78	1,926.55	10,072.98
March	3,398.78	1,716.28	11,756.48
April	3,311.84	2,066.78	13,001.54
May	3,036.50	5,338.21	10,699.83
June	3,188.31	407.01	13,481.13
July	3,067.74	8,334.29	13,314.58
August	2,901.36	6.21	16,109.73
December	2,893.07	3,489.27	15,548.27
October	3,342.40	1,880.50	14,590.33
November	2,700.13	4,862.89	12,437.56

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec. 1	2,166,830.42
Runs from wells	623,668.35
Other receipts	120,119.53
Regular deliveries	503,186.91
Other deliveries	340,272.50

The amount of Illinois oil run by the Tidewater Pipe Line Co. in November was 26,478.68 bbls., and deliveries were 18,272.73 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries from the Illinois Field as follows:

1923—	Runs	Deliveries
November	546,359.43	355,692.09
December	534,185.04	382,543.41
1924—		
January	493,337.25	280,792.00
February	585,490.70	353,613.16
March	611,289.36	369,543.51
April	514,356.43	339,546.19
May	751,080.44	510,414.42
June	725,060.87	526,493.39
July	769,646.84	562,396.59
August	720,457.72	519,335.79
September	714,875.36	535,762.89
October	741,767.42	543,863.77
November	650,147.63	521,459.21

The Tidewater Pipe Co., Ltd., also delivered in November 317,162.27 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 451,585.06 bbls.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Av. bbls. per wk.—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	
May	42,903	33,194	615,709	92,706	61,642	846,154	.....	70,127	.....	.....	70,127	916,281
June	121,800	34,300	581,000	103,369	51,331	891,800	.....	.....	.....	.....	.....	891,800
July	37,710	16,129	473,516	84,452	42,452	654,249	.....	16,936	.....	.....	.....	671,185
August	114,032	33,419	654,387	71,806	33,871	907,515	907,515	.....	6,774	.....	.....	914,289

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Av. bbls. per wk.—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	
March	148,358	141,806	283,458	124,642	292,642	990,906	463,806	365,358	223,552	55,548	1,108,261	2,099,167
April	152,369	154,931	913,800	94,962	246,969	971,131	382,900	348,131	119,000	16,868	865,999	1,837,031
May	156,485	134,603	288,903	59,612	300,097	939,699	315,679	295,358	199,591	38,164	848,792	1,788,491
June	120,169	108,731	434,931	68,131	239,400	971,362	412,741	251,762	159,831	33,831	858,165	1,829,527
July	62,097	81,291	445,067	38,418	277,970	904,843	320,194	273,455	130,739	34,973	759,361	1,666,204
August	80,839	57,355	247,710	98,903	207,065	691,872	370,549	238,677	115,839	14,677	739,743	1,431,614

GROSS PRODUCTION AND DAILY AVERAGE IN THE UNITED STATES FOR 12 MONTHS

1923—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming-Montana	Other Fields	Total
November:	Month	22,397,848	12,334,620	15,556,507	2,268,840	2,973,000	1,816,860	4,792,466	3,138,464	65,278,605
	Daily average	746,595	411,154	518,550	75,628	99,100	60,562	159,782	104,615	3,176,582
December:	Month	21,899,247	12,232,259	10,065,856	2,345,150	4,017,850	1,919,574	3,304,326	3,147,812	58,932,074
	Daily average	706,427	394,589	324,705	75,650	129,608	61,922	106,591	101,542	1,901,034
1924—										
January:	Month	20,912,500	12,292,833	10,336,643	2,233,878	3,686,680	1,601,175	4,636,230	2,950,500	58,640,439
	Daily average	674,597	396,543	333,449	71,738	118,925	51,651	149,556	95,177	1,891,627
February:	Month	19,341,226	12,236,637	10,495,486	2,112,553	3,302,750	1,497,450	4,168,450	2,997,700	56,152,552
	Daily average	666,939	421,953	361,913	72,857	113,888	51,629	143,740	103,369	1,936,295
March:	Month	19,913,262	13,336,851	12,077,617	2,206,425	3,882,695	1,701,593	3,993,890	3,268,000	60,276,333
	Daily average	642,363	430,221	389,601	71,175	126,248	54,890	128,835	105,097	1,947,430
April:	Month	19,299,849	13,452,240	11,726,830	2,265,090	4,068,225	1,496,582	3,901,755	3,231,000	59,439,571
	Daily average	643,328	448,408	390,861	75,503	135,608	49,853	130,058	107,700	1,981,319
May:	Month	19,833,576	14,248,057	11,923,316	2,486,696	4,659,117	1,596,701	4,033,564	3,355,000	62,136,027
	Daily average	639,793	459,615	384,623	80,216	150,291	51,507	130,109	108,226	2,004,903
June:	Month	18,807,999	14,457,390	11,515,020	2,473,320	4,756,443	1,811,880	3,798,634	3,211,500	60,832,186
	Daily average	626,933	481,913	383,834	82,444	158,548	60,419	126,621	107,050	2,027,739
July:	Month	19,274,755	15,191,860	11,820,889	2,678,834	4,598,160	1,931,641	3,728,525	3,387,990	62,613,654
	Daily average	621,766	490,050	381,319	86,414	148,321	62,311	120,275	109,290	2,019,796
August:	Month	19,112,998	16,572,104	11,805,753	2,717,398	4,400,116	1,898,246	3,816,627	3,280,017	63,603,259
	Daily average	616,548	534,584	380,831	87,658	141,810	61,234	123,117	105,807	2,051,718
September:	Month	18,308,233	16,299,030	10,670,640	2,688,690	4,022,025	1,811,985	3,427,455	3,305,700	60,533,758
	Daily average	610,274	543,301	355,688	89,623	134,068	60,996	114,249	110,190	2,017,792
October:	Month	18,696,565	16,153,604	10,985,315	2,769,819	3,875,558	1,878,941	3,053,810	3,472,031	60,885,647
	Daily average	603,115	521,084	354,365	89,349	125,018	60,611	98,510	112,001	1,964,033
Total 12 months		237,807,058	168,807,485	138,978,872	29,236,985	48,242,619	20,961,628	46,655,732	38,735,714	729,417,193
Daily average		649,746	461,223	379,724	79,612	131,810	54,540	127,476	105,808	1,992,840

SHEAR ON THIS LINE AND SLIP THIS GRAPH UNDER THE GLASS ON YOUR DESK

CURRENT SU

19

The C

REFI

MILLIONS OF GALLONS PER MONTH

1,200
1,100
1,000
900
800
700
600
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400
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200
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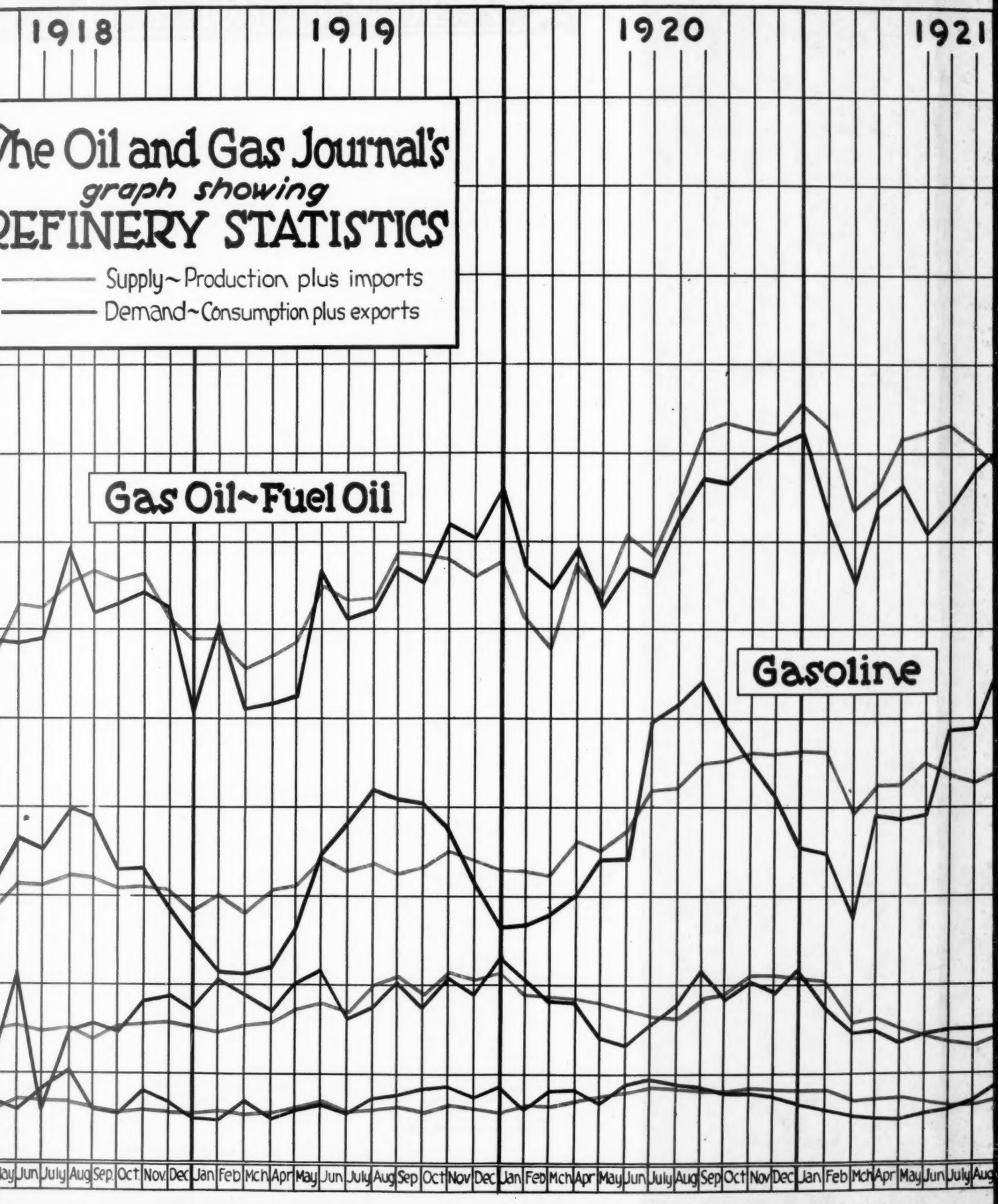
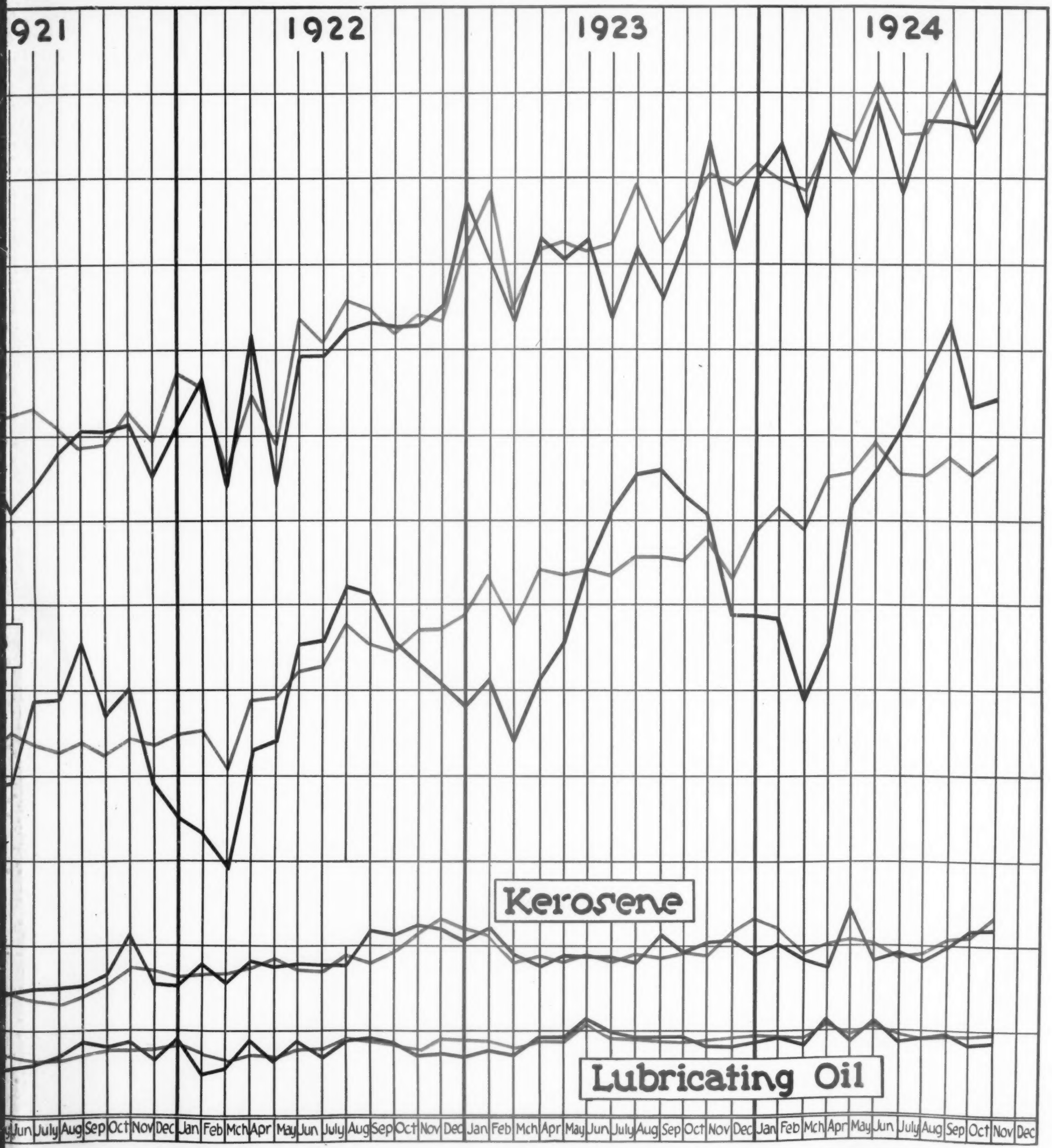
J Feb Mch Apr. May Jun July

SUPPLY OF AND DEMAND FOR GASOLINE, K


1918
1919
1920
1921
The Oil and Gas Journal's
graph showing
REFINERY STATISTICS
Supply~Production plus imports
Demand~Consumption plus exports
Gas Oil~Fuel Oil
Gasoline
ay Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug

E, KEROSENE, GAS OIL-FUEL OIL AND LUBRICATING OIL


921
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Kerosene
Lubricating Oil
Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug Sep Oct Nov Dec Jan Feb Mch Apr May Jun July Aug Sep Oct Nov Dec

GASOLINE

Year—	Stock Jan. 1	Supply	Demand
1918	412,256,833	3,583,212,313	3,698,142,163
1919	297,326,983	3,966,377,266	3,816,910,818
1920	446,793,431	4,923,024,806	4,907,436,400
1921	462,381,837	5,191,365,322	5,067,660,027
1922	586,087,132	6,264,367,264	5,966,661,535
1923	883,792,861	7,747,258,683	7,556,151,894
1924	1,074,899,650	7,505,479,060	7,428,004,473
Total		39,181,084,714	38,440,967,310

KEROSENE

Year—	Stock Jan. 1	Supply	Demand
1918	497,750,082	1,825,360,137	1,942,992,390
1919	380,117,829	2,341,632,164	2,382,430,303
1920	339,319,690	2,320,095,443	2,266,344,210
1921	393,070,923	1,945,126,156	1,997,188,524
1922	341,008,555	2,306,472,939	2,366,431,162
1923	281,050,332	2,349,236,195	2,347,090,860
1924	283,195,667	2,046,997,319	2,022,068,384
Total		15,134,920,353	15,324,545,833

GAS OIL—FUEL OIL

Year—	Stock Jan. 1	Supply	Demand
1918	577,899,112	7,321,397,557	7,240,295,312
1919	659,001,357	7,627,288,566	7,572,165,468
1920	714,124,455	8,861,451,931	8,738,171,972
1921	837,404,414	9,663,816,135	9,169,955,110
1922	1,331,265,439	10,830,004,849	10,856,542,438
1923	1,304,727,850	12,590,214,630	12,379,907,769
1924	1,515,034,711	11,591,200,337	11,494,649,154
Total		68,485,374,005	67,451,687,223

LUBRICATING OIL

Year—	Stock Jan. 1	Supply	Demand
1918	136,855,342	841,465,767	839,467,535
1919	138,853,574	846,760,017	848,294,657
1920	137,318,934	1,046,708,349	1,023,504,806
1921	160,522,477	877,859,074	821,616,035
1922	216,765,516	980,560,883	961,591,612
1923	235,734,787	1,098,587,355	1,091,537,072
1924	242,785,070	955,992,832	950,779,404
Total		6,647,934,277	6,536,791,121

GASOLINE

Stock January 1, 1918	412,256,833
Supply, 82 months	39,181,084,714
Total supply	39,593,341,547
Demand, 82 months	38,440,967,310
Stock, October 31, 1924	1,152,374,237

KEROSENE

Stock January 1, 1918	497,750,082
Supply, 82 months	15,134,920,353
Total supply	15,632,670,435
Demand, 82 months	15,324,545,833
Stock October 31, 1924	308,124,602

GAS OIL—FUEL OIL

Stock January 1, 1918	577,899,112
Supply, 82 months	68,485,374,005
Total supply	69,063,273,117
Demand, 82 months	67,451,687,223
Stock October 31, 1924	1,611,585,894

LUBRICATING OIL

Stock January 1, 1918	136,855,342
Supply, 82 months	6,647,934,277
Total supply	6,784,789,619
Demand, 82 months	6,536,791,121
Stock October 31, 1924	247,998,498

NOTE—Figures in the above tables represent gallons.